

# **ASTRONOMY AND ASTROPHYSICS**

**A European Journal**

**Annual Author and Subject Index 1982  
pp. I — LXXXII**

**Main Journal: Vols. 105 — 116  
Supplement Series: 47.1 — 50.2**

**Thesaurus to Annual Subject Index  
pp. LXXXIII — LXXXVII**

**Published by Springer-Verlag Berlin · Heidelberg · New York  
on behalf of the Board of Directors**

# Astronomy and Astrophysics A European Journal

## Board of Directors

Chairman: G. Contopoulos  
(Greece)

R. A. J. Coutrez  
(Belgique)

Vice Chairman: B. Hauck  
(Switzerland)

H. Haupt  
(Austria)

A. G. Hearn  
(The Netherlands)

K. Hunger  
(Germany, Federal Republic)

G. Larsson-Leander  
(Sweden)

W. Priester  
(Germany, Federal Republic)

A. Reiz  
(Denmark)

E. Schatzman  
(France)

G. Setti  
(Italy)

J. L. Steinberg  
(France)

L. Woltjer  
(ESO)

## Editors-in-Chief

J. Lequeux  
Observatoire de Meudon  
92190 Meudon (France)  
Tel. 534-75-30 ext 368

M. Grewing  
Astronomy and Astrophysics  
Editorial Office  
Keplerstrasse 17  
7400 Tübingen  
(Fed. Rep. of Germany)  
Tel. (07071) 294982

## Letter-Editor

S. R. Pottasch  
Kapteyn Astronomical Institute  
P. O. Box 800  
Groningen 8002 (The Netherlands)  
Tel. 050-116643

## Editing Secretaries

Miss B. Perche  
Mrs. M. Rougeot

Mrs. V. Berchtold

Mrs. E. Goss

Annuaire

Astronomy  
Volume

Supplement  
Volume

\* Volume  
published  
printed

Aalders

115,

Aannes

Aarseth

Acamp

Achter

Acker,

Acton,

Ade, P.

Adelma

Afraim

Agrawa

Albrech

Alcaino

141)

Alecian

Allama

Allen, I

Allen, I

Aller, L

Alloin,

Altam

Altenh

Ananth

Anders

176

Ando,

Andrei

Andrez

Andrill

L10;

Angerh

Antone

Aoki, S

Appara

Appen

Ardebe

Arena,

Aréval

Arlot, J

Arnai,

Arnau

Arnese

Arnoul

Arp, H

Aschen

Asteria

Athana

Athana

111,

# Annual Author Index

## Astronomy and Astrophysics Volumes 105-116 (1982)

## Supplement Series Volumes 47.1-50.2

\* Volume and page numbers of articles published in the Supplement Series are printed in italics.

Aalders, J.W.G. **112**, 178 (*49*, 427); **115**, 308  
 Aannestad, P.A. **115**, 219  
 Aarseth, S.J. **105**, 21; **114**, 41  
 Acampa, E. **107**, 414 (*47*, 485)  
 Achterberg, A. **114**, 233  
 Acker, A. **110**, 181 (*48*, 363)  
 Acton, L.W. **111**, 125  
 Ade, P.A.R. **116**, 130  
 Adelman, S.J. **112**, 394 (*49*, 663)  
 Afraimovich, E.L. **105**, L5  
 Agrawal, P.C. **113**, 73  
 Albrecht, R. **106**, 379 (*47*, 221)  
 Alcaïno, G. **114**, 213; **114**, 422 (*50*, 141)  
 Alecian, G. **107**, 61  
 Allamandola, L.J. **109**, L12  
 Allen, D.A. **107**, L5  
 Allen, R.J. **115**, 373  
 Aller, L.H. **115**, 217 (*50*, 209)  
 Alloin, D. **105**, 335; **112**, 257  
 Altamore, A. **112**, 179 (*49*, 511)  
 Altenhoff, W.J. **108**, 227  
 Anantharamaiah, K.R. **106**, 105  
 Andersen, J. **112**, 180 (*49*, 571); **113**, 176  
 Ando, H. **108**, 7  
 Andrei, A.H. **110**, 183 (*48*, 485)  
 Andrez, R. **115**, 216 (*50*, 147)  
 Andriillat, Y. **108**, 416 (*48*, 93); **113**, L10; **114**, 351  
 Angerhofer, P.E. **115**, 428  
 Antonello, E. **112**, 395 (*49*, 709)  
 Aoki, S. **105**, 359  
 Apparao, K.M.V. **107**, L5  
 Appenzeller, I. **105**, 313; **108**, 95  
 Ardeberg, A. **115**, 347  
 Arena, P. **108**, 416 (*48*, 81)  
 Arévalo, M.J. **111**, 266  
 Arlot, J.-E. **107**, 305; **111**, 151  
 Arnal, E.M. **106**, 229  
 Arnaud, J. **112**, 350; **116**, 248  
 Arnesen, A. **106**, 327  
 Arnould, M. **116**, 183  
 Arp, H. **109**, 101; **114**, 182  
 Aschenbach, B. **115**, 167  
 Asteriadis, G. **113**, 165  
 Athanase, M. **115**, 216 (*50*, 147)  
 Athanassoula, E. **105**, 76; **107**, 101; **111**, 28

Auge, A. **108**, 296  
 Aurière, M. **106**, 179 (*46*, 347); **108**, 334; **109**, 301  
 Axford, W.I. **111**, 317  
 Azzopardi, M. **114**, 422 (*50*, 119)  
 Baade, D. **105**, 65; **110**, L15; **114**, 131  
 Baas, F. **109**, L12  
 Bahcall, J.N. **115**, 242  
 Bajaja, E. **108**, 415 (*48*, 71); **112**, 396 (*49*, 745)  
 Balega, Y. **115**, 253  
 Balthasar, H. **111**, 266; **114**, 357  
 Bandiera, R. **112**, 52  
 Barat, C. **109**, L9  
 Barbanis, B. **114**, 360  
 Barbier, R. **106**, 53; **111**, 210 (*49*, 73); **114**, 182  
 Barbieri, C. **105**, 369; **114**, 216; **114**, 373  
 Barbon, R. **111**, 210 (*49*, 73); **115**, 388; **116**, 35; **116**, 43  
 Bardin, C. **106**, 380 (*47*, 319)  
 Barge, P. **109**, 179; **109**, 228; **115**, 8  
 Barros, S. **107**, 413 (*47*, 481)  
 Barrow, C.H. **106**, 94  
 Barsella, B. **111**, 130  
 Bartel, N. **106**, 180 (*46*, 421); **109**, 340  
 Bartholdi, P. **108**, 51; **110**, 184 (*48*, 503)  
 Barwig, H. **114**, L11  
 Baschek, B. **105**, 300; **108**, 387; **109**, 10; **112**, 76  
 Bässgen, M. **111**, L1  
 Bastian, U. **109**, 245  
 Bastien, P. **108**, 417 (*48*, 153)  
 Bateson, F.M. **110**, 182 (*48*, 383)  
 Bath, G.T. **116**, 286  
 Batrla, W. **110**, L20; **115**, 185  
 Battaner, E. **112**, 229  
 Battistini, P. **107**, 412 (*47*, 451); **113**, 39  
 Baudry, A. **113**, 118  
 Bazzano, A. **106**, 174; **108**, 249; **111**, 312  
 Beck, R. **105**, 192; **106**, 112; **106**, 121; **108**, 176; **115**, 428  
 Becker, W. **106**, 179 (*46*, 347); **106**, 379 (*47*, 247); **111**, 209 (*49*, 61); **112**, 133  
 Beckman, J.E. **106**, 380 (*47*, 295)  
 Bedijn, P.J. **115**, 207  
 Beer, H. **105**, 270  
 Beintema, D. **115**, 308  
 Beltrametti, M. **105**, 300; **106**, 153; **112**, 1; **112**, 104; **112**, 174  
 Belvedere, G. **105**, 133  
 Bennett, K. **105**, 164  
 Benvenuti, P. **108**, 314; **115**, 315  
 Benz, A.O. **105**, 221; **107**, 88; **107**, 178; **108**, 161; **109**, 305  
 Benz, W. **109**, 258; **111**, 224; **115**, 30  
 Bergeat, J. **114**, 341  
 Berkhuysen, E.M. **112**, 369  
 Bernard, A. **111**, 151  
 Bertin, G. **106**, 274; **108**, 265

Bertout, C. **107**, 368; **107**, 412 (*47*, 419)  
 Bettoni, D. **113**, 344  
 Bhattacharyya, S.S. **107**, 26  
 Bianchi, L. **107**, 205  
 Bianchini, A. **106**, 176; **108**, 243  
 Biegging, J. **109**, 344; **112**, 394 (*49*, 607)  
 Biémont, E. **107**, 166; **108**, 127; **112**, 337  
 Biermann, L. **108**, 221  
 Bignami, G.F. **105**, 164; **107**, 390; **115**, 404  
 Bijjaoui, A. **110**, L11; **112**, 396 (*49*, 715)  
 Bijleveld, W. **111**, 50  
 Binette, L. **115**, 315  
 Binggeli, B. **107**, 338  
 Birkle, K. **108**, 274  
 Bisiacchi, G.F. **107**, 252  
 Bisnovatyi-Kogan, G.S. **113**, 179  
 Blacher, S. **112**, 35  
 Blackwell, D.E. **112**, 209  
 Blanco, C. **106**, 311; **115**, 280  
 Blazit, A. **106**, 235; **115**, 253  
 Block, D.L. **109**, 336  
 Bloemen, J.B.G.M. **115**, 404  
 Bocchia, R. **106**, 79  
 Bodenheimer, P. **108**, 25; **112**, 104  
 Bodo, G. **114**, 394  
 Bohlin, R.C. **107**, 11; **112**, 341  
 Boland, W. **114**, 109  
 Bonazzola, S. **105**, 1; **108**, 19; **111**, 242  
 Bonche, P. **112**, 268  
 Bonneau, D. **106**, 235; **115**, 253  
 Bonnet, R.M. **111**, 125  
 Bonnet-Bidaud, J.M. **106**, 339; **112**, 355; **114**, 422 (*50*, 129); **116**, 232  
 Bonoli, C. **114**, 216; **114**, 373  
 Bónoli, F. **107**, 412 (*47*, 451); **113**, 39  
 Bord, D.J. **111**, 362  
 Borgnino, J. **107**, 333  
 Borra, E.F. **111**, 117  
 Borsenberger, J. **106**, 158  
 Bortoletto, F. **114**, 373  
 Bosma, A. **107**, 101  
 Bottinelli, L. **106**, 182 (*47*, 171); **113**, 61; **114**, 421 (*50*, 101)  
 Bouchet, P. **111**, 151  
 Boulesteix, J. **108**, 134  
 Boury, A. **108**, 49  
 Bowers, M.T. **114**, 275  
 Boyer, R. **106**, 181 (*47*, 145)  
 Brahic, A. **112**, 157  
 Brand, J. **107**, 416 (*47*, 591)  
 Brandt, P.N. **109**, 77  
 Branham, L., Jr. **108**, L5  
 Brault, J.W. **108**, 201  
 Bräuninger, H. **115**, 167  
 Braunsfurth, E. **113**, 237  
 Braz, M.A. **107**, 272; **111**, 91  
 Bregman, J.D. **112**, L6  
 Bretagnon, P. **105**, 42; **108**, 69; **114**, 278  
 Bridle, A.H. **110**, 169  
 Brinkmann, W.P. **107**, 48  
 Briot, D. **105**, 422; **105**, 422

- Brosch, N. 107, 300; 108, 415 (48, 63); 112, 388; 113, 231  
 Broucke, R. 112, 305  
 Brown, T.M. 116, 260  
 Bruca, L. 115, 280  
 Bruhweiler, F.C. 106, 137  
 Bruner, M. 111, 125  
 Bruning, D.H. 115, 203  
 Buccheri, R. 105, 164; 107, 390; 115, 404  
 Buchler, J.R. 114, 188  
 Buczylowski, U.R. 108, 176  
 Buffoni, L. 108, 141; 112, 179 (49, 509)  
 Buonanno, R. 107, 412 (47, 451); 113, 39  
 Buonauro, B. 111, 113  
 Burchi, R. 111, 212 (49, 129)  
 Burger, M. 107, 320; 109, 289  
 Burkert, W. 115, 167  
 Burkhardt, G. 106, 133  
 Burkhart, C. 107, 416 (47, 595)  
 Burki, G. 107, 43; 107, 205; 109, 258; 115, 30  
 Burnage, R. 112, 178 (49, 483)  
 Bussoletti, E. 105, 184  
 Butchins, S.A. 109, 360  
 Button, S. 108, 416 (48, 137)  
 Cabot W. 112, L1  
 Caccin, B. 109, 274; 111, 113  
 Calafat, R. 110, 23  
 Calamai, G. 109, 123; 112, 395 (49, 677)  
 Caldeira, J. 106, 180 (46, 371); 107, 413 (47, 463)  
 Caloi, V. 107, 145  
 Canal, R. 110, 23  
 Cao, Ch. 106, 287  
 Capaccioli, M. 111, 210 (49, 73); 115, 388  
 Caputo, F. 111, 312  
 Caranicolas, N. 114, 360  
 Caraveo, P.A. 105, 164; 107, 390; 115, 404  
 Carnevali, P. 107, 172  
 Carozzi-Meyssonier, N. 106, 379 (47, 237)  
 Carquillat, J.M. 107, 215; 115, 23  
 Carrasco, L. 106, 89; 107, 412 (47, 419)  
 Carsenty, U. 106, 307; 113, 142; 116, 54  
 Carta, F. 112, 179 (49, 509); 114, 388  
 Carusi, A. 115, 327; 116, 201  
 Casertano, S. 106, 274  
 Casoli, F. 110, 287  
 Cassatella, A. 107, 205; 111, 120; 112, 341  
 Castellani, V. 107, 145; 111, 312  
 Castelli, F. 115, 217 (50, 233)  
 Catalano, S. 106, 311; 115, 280  
 Cates, R.D. 114, 275  
 Caulet, A. 110, 185  
 Cavaliere, A. 114, L1  
 Cavallini, F. 109, 233  
 Cavallo, G. 111, 368  
 Cazenave, A. 112, 157  
 Ceppatelli, G. 107, 333; 109, 233  
 Cerruti-Sola, M. 108, 314  
 Cesarsky, D.A. 112, 49; 113, L7  
 Chabod, D. 115, 216 (50, 147)  
 Chambe, G. 113, 31  
 Chambon, G. 109, L9  
 Chapront-Touzé, M. 116, 75  
 Chevalier, C. 106, 339; 109, L1; 110, 316; 111, L9; 112, 68; 114, L7  
 Chevillot, A. 113, L1  
 Chevreton, M. 105, 1  
 Chian, A.C.-L. 112, 391  
 Chincarni, G. 109, 238  
 Chini, R. 110, 332  
 Chiosi, C. 105, 140; 110, 54  
 Chiuderi, C. 105, L1; 105, 133  
 Chlistovsky, F. 112, 179 (49, 509); 114, 388  
 Chollet, F. 110, 181 (48, 371); 115, 217 (50, 195)  
 Christiansen, J.J. 109, 141  
 Chu, Y.-Q. 106, 287  
 Churayev, R.S. 113, 179  
 Ciatti, F. 116, 35; 116, 43  
 Clairemidi, J. 115, 216 (50, 147)  
 Clarià, J.J. 106, 380 (47, 323); 114, 419 (50, 13)  
 Clausen, J.V. 112, 180 (49, 571)  
 Code, A.D. 106, 381 (47, 341)  
 Colin, J. 97, 33; 115, 216 (50, 147)  
 Collin-Souffrin, S. 106, 362  
 Colomb, F.R. 112, 141  
 Combes, F. 110, 287  
 Combes, M. 113, L1  
 Comte, G. 114, 7  
 Condal, A.R. 112, 124  
 Connor, J.W. 107, L1  
 Considère, S. 111, 28; 115, 216 (50, 147)  
 Conway, R.G. 105, 278  
 Cordoni, J.-P. 106, 179 (46, 347)  
 Corsi, C.E. 107, 412 (47, 451); 113, 39  
 Cosmovici, C.B. 114, 373  
 Costain, C.H. 111, 299  
 Courtès, G. 108, 134; 116, 312  
 Couteau, P. 105, 323; 110, 182 (48, 443); 114, 420 (50, 49)  
 Cram, L.E. 108, 251  
 Cramer, N. 112, 330  
 Crézé, M. 107, 101; 115, 216 (50, 147)  
 Cristiani, S. 105, 369; 114, 216  
 Crivellari, L. 106, 332; 106, 380 (47, 295); 107, 75; 114, 170  
 Crowe, R.A. 108, 55  
 Cruvellier, P. 116, 312  
 Cucchiario, A. 114, 102  
 Cunningham, C.T. 116, 130  
 Dachs, J. 107, 240; 115, 218 (50, 261)  
 Daguiillon, J. 111, 151  
 Daltaubuit, E. 111, 43  
 Damle, S.V. 108, 249  
 Danese, L. 107, 39  
 Danezis, E. 111, 209 (49, 1)  
 Daniel, J.-Y. 111, 58; 114, 341  
 Danks, A.C. 106, 4; 106, 105  
 D'Antona, F. 113, 303; 114, 289; 115, L1  
 Danziger, I.J. 111, 171  
 Davidson, J.P. 111, 362  
 d'Àvila, V.A. 110, 183 (48, 485)  
 Davoust, E. 112, 305; 112, 394 (49, 631)  
 de Almeida, A.A. 113, 199  
 Débarbat, S. 115, 217 (50, 195)  
 Debehogne, H. 106, 180 (46, 371); 107, 413 (47, 463); 108, 197; 110, 182 (48, 449); 112, 396 (49, 775); 114, 420 (50, 23); 114, 420 (50, 73); 115, 218 (50, 277)  
 de Boer, K.S. 115, 128; 115, 218 (50, 247)  
 de Castro, E. 113, 94  
 Decaudin, M. 111, 125  
 de Freitas Pacheco, J.A. 108, 111  
 Degewij, J. 110, 183 (48, 481)  
 Deharveng, J.M. 106, 16; 109, 179  
 Deharveng, L. 110, 185  
 de Jager, C. 107, 320; 109, 289  
 de Jong, T. 115, 213  
 de Jonge, A.R.W. 112, 178 (49, 427)  
 de la Noë, J. 113, 118  
 Delboulle, L. 108, 201  
 Delmas, C. 111, 211 (49, 107)  
 de Loore, C. 106, 137; 111, 229; 115, 69  
 de Mottoni y Palacios, G. 116, 323  
 Dennefeld, M. 111, 171; 112, 215; 113, L10  
 de Ruiter, H.R. 105, 254  
 de Sanctis, G. 107, 412 (47, 447); 108, 197; 110, 182 (48, 449); 114, 421 (50, 421)  
 Despiau, R. 108, 296  
 Deubner, F.-L. 111, L1; 114, 85  
 de Vaucouleurs, A. 111, 212 (49, 109)  
 de Vaucouleurs, G. 111, 212 (49, 109)  
 de Vegt, C. 109, L15; 109, 282; 113, 213; 114, 147  
 Dewdney, P.E. 111, 299  
 De Zotti, G. 107, 39  
 d'Hendecourt, L.B. 109, L12  
 Dickey, J.M. 112, 120  
 Dickinson, A.S. 107, 26  
 Didelon, P. 115, 217 (50, 199)  
 Diehl, R. 110, 138  
 Diethelm, R. 106, 380 (47, 335)  
 Dimitrijević, M.S. 112, 251  
 Dipaolantonio, A. 111, 212 (49, 129)  
 Doazan, V. 115, 138  
 D'Odorico, S. 105, 410; 108, 339; 115, 315  
 Dokuchaev, V.I. 111, 1; 111, 16  
 Dollfus, A. 116, 323  
 Donas, J. 106, 16

Doom,  
 Dopita,  
 Dorfi, E.  
 Dourne  
 Downe  
 Drechs  
 Drew, J.  
 Drilling  
 Dubner  
 Dubois  
 Dudo  
 Duflot,  
 (48,  
 Duflot-  
 Dulk, C.  
 Dultzin  
 Dumon  
 Duquen  
 Durdin  
 Durney  
 Durran  
 332  
 Durrett  
 Dürst,  
 Dvorak  
 Dyck, I.  
 Dzhalil  
 Eckart  
 Edelm  
 Egret,  
 Eichen  
 Einaud  
 Eiroa,  
 Ekers,  
 Elldér,  
 Elsässe  
 Engin,  
 Epchte  
 Erculia  
 Europ  
 (50,  
 Fabbri  
 Fabian  
 Fabric  
 Falcia  
 Fang,  
 (49,  
 Fang,  
 Fanti,  
 Fanti,  
 Farag  
 170  
 Fehren  
 416  
 178  
 Feibel  
 Feitzin  
 Feldm  
 Félen  
 Felli,



- Doom, C. 116, 303; 116, 308  
 Dopita, M.A. 115, 315  
 Dorfi, E. 114, 151  
 Dourneau, G. 111, 151; 112, 73  
 Downes, D. 112, 394 (49, 607)  
 Drechsel, H. 106, 70; 110, 246; 110, 281  
 Drew, J. 106, 153  
 Drilling, J.S. 113, L22  
 Dubner, G. 112, 141  
 Dubois, P. 110, 182 (48, 375)  
 Dudognon, G. 111, 211 (49, 105)  
 Duflot, M. 108, 415 (48, 1); 110, 182 (48, 409)  
 Duflot-Augarde, R. 112, 257  
 Dulk, G.A. 116, 217  
 Dultzin-Hacyan, D. 111, 43  
 Dumont, S. 106, 362  
 Duquenois, A. 114, 7  
 Durdin, J.M. 113, 211  
 Durney, B.R. 108, 322  
 Durrant, C.J. 111, 272; 114, 85; 116, 332  
 Durret, F. 106, 67  
 Dürst, J. 112, 241  
 Dvorak, R. 108, 14  
 Dyck, H.M. 109, 320  
 Dzhalilov, N.S. 112, 16
- Eckart, A. 108, 157  
 Edelman, C. 111, 220  
 Egret, D. 106, 115  
 Eichendorf, W. 107, 276; 109, 274  
 Einaudi, G. 105, L1  
 Eiroa, C. 108, 274  
 Ekers, R.D. 110, 100; 110, 169  
 Elldér, J. 113, L18  
 Elsässer, H. 108, 274  
 Engin, S. 113, 250  
 Epchtein, N. 107, 229; 111, 91  
 Erculiani Abati, L. 110, 180 (48, 333)  
 European Science Foundation 115, 216 (50, 187)
- Fabbri, R. 114, 219  
 Fabian, A.C. 111, L9  
 Fabricius, C. 105, 413  
 Falciani, R. 107, 414 (47, 485)  
 Fang, Ch. 107, 412 (47, 441); 111, 209 (49, 61)  
 Fang, L.-Z. 106, 287  
 Fanti, C. 105, 200; 114, 400  
 Fanti, R. 105, 200; 110, 169  
 Faraggiana, R. 107, 416 (47, 595); 114, 170  
 Fehrenbach, C. 108, 415 (48, 1); 108, 416 (48, 93); 110, 182 (48, 409); 112, 178 (49, 483)  
 Feibelman, W.A. 109, 136  
 Feitzinger, J.V. 111, 255; 116, 117  
 Feldman, P.D. 107, 385  
 Fëlenbok, P. 110, L11; 113, L1  
 Felli, M. 107, 354; 109, 123
- Fenkart, R.P. 112, 178 (49, 475)  
 Feretti, L. 105, 200; 115, 423  
 Fernández-Figueroa, M.J. 113, 94  
 Ferrari, A. 114, 394  
 Ferrari-Toniolo, M. 111, L7; 112, 292  
 Ferreri, W. 114, 421 (50, 421)  
 Ferrin, I. 107, L7  
 Fesen, R.A. 114, 414  
 Ficarra, A. 105, 200  
 Fichtel, C.E. 109, 352  
 Figer, A. 111, 151  
 Finkenzeller, U. 112, 174  
 Firmani, C. 107, 252  
 FitzGerald, M.P. 111, 81; 112, 179 (49, 521)  
 Fliche, H.H. 108, 256  
 Floquet, M. 112, 299  
 Flower, D.R. 110, 163; 114, 238  
 Focardi, P. 113, 15  
 Fogh Olsen, H.J. 111, 209 (49, 13)  
 Foing, B. 111, 125  
 Fomalont, E.B. 110, 169  
 Forster, J.R. 114, 109; 115, 164  
 Fowler, L.A. 109, 279  
 Foy, R. 106, 235; 115, 253  
 Fracassini, M. 107, 326  
 Francou, G. 114, 125  
 Fransson, C. 111, 140  
 Friberg, P. 109, 23  
 Fricke, W. 107, L13  
 Fridlund, C.V.M. 115, 308  
 Friedjung, M. 114, 351  
 Frisch, H. 114, 119  
 Frisch, U. 105, 6  
 Froeschlé, C. 111, 346  
 Froeschlé, M. 116, 89  
 Fuchs, B. 113, 85  
 Fürst, E. 107, 178; 115, 428  
 Fusi Pecci, F. 107, 412 (47, 451); 113, 39
- Gabriel, M. 110, 50; 113, 219  
 Gahm, G.F. 106, 25; 107, 354; 113, 176  
 Gaida, G. 105, 362  
 Gallagher, J.S. 106, 109  
 Galletta, G. 112, 361; 113, 344  
 Garcia-Alegre, M.C. 106, 261  
 Gardner, F.F. 107, L10  
 Gargaud, M. 106, 197  
 Garnier, R. 105, 284  
 Gathier, R. 106, 229; 116, L5  
 Gatley, I. 105, 229  
 Gehlich, U.K. 113, 213  
 Gehren, T. 109, 187  
 Georgelin, Y.M. 110, 185; 115, 61  
 Georgelin, Y.P. 110, 185; 115, 61  
 Gerard, E. 113, L1  
 Geyer, E.H. 108, 416 (48, 85)  
 Giallongo, E. 114, L1  
 Giangrande, A. 112, 179 (49, 511)  
 Giardinelli, S. 109, 123  
 Gieseking, F. 106, 179 (46, 365); 112, 179 (49, 497); 112, 395 (49, 673)
- Giguere, P.T. 108, 221  
 Gil, J. 115, 270  
 Gilra, D.P. 108, 111; 109, 182  
 Giménez, A. 115, 321  
 Ginestet, N. 107, 215; 115, 23  
 Gioia, I.M. 105, 200; 116, 164  
 Giovanelli, R. 114, 203  
 Giovannelli, F. 107, 376  
 Giovannini, G. 105, 200; 115, 423  
 Gispert, R. 106, 293  
 Giuricin, G. 109, 366; 111, 86; 111, 210 (49, 89); 114, 74  
 Glass, I.S. 107, 276; 115, 84  
 Gleizes, F. 110, 181 (48, 363)  
 Glencross, W.M. 106, 339  
 Glentzlin, M. 110, 181 (48, 371)  
 Gliese, W. 107, 413 (47, 471)  
 Godet, L. 115, 216 (50, 147)  
 Godoli, G. 116, 188  
 Golay, M. 107, 415 (47, 547)  
 Goldman, I. 115, 242  
 Gomez, R. 111, 266  
 Goncz, G. 110, 1  
 Goossens, M. 109, 166; 115, 413  
 Gopal-Krishna 113, 150  
 Goss, W.M. 106, 167; 106, 180 (46, 389); 106, 229; 108, 412; 110, 100; 112, 120; 115, 164; 115, 223; 115, 373  
 Goudis, C. 105, 329  
 Gougouenheim, L. 106, 182 (47, 171); 113, 61; 114, 421 (50, 101)  
 Graham, D.A. 106, 180 (46, 421); 109, 145  
 Granès, P. 111, 211 (49, 105)  
 Granitzky, L.V. 116, 312  
 Grappin, R. 105, 6  
 Graser, U. 110, 138  
 Gratton, R.G. 115, 171; 115, 336  
 Gräve, R. 105, 192  
 Greenberg, J.M. 109, L12  
 Gregorini, L. 105, 200; 116, 164  
 Greve, A. 111, 171; 111, 185; 115, 79  
 Grevesse, N. 108, 127; 108, 201; 112, 337  
 Grewing, M. 115, 128  
 Griffin, R.F. 106, 221  
 Gronenschild, E.H.B.M. 110, 180 (48, 305)  
 Groote, D. 114, 420 (50, 77); 116, 64  
 Grosbøl, P. 107, 23  
 Guallino, G. 111, 211 (49, 107)  
 Guélin, M. 107, 107; 109, 23  
 Guérin, J. 113, L1  
 Guiderdoni, B. 109, 355  
 Guidi, I. 105, 184  
 Guilbert, P.W. 111, L9  
 Guilloteau, S. 114, 238; 116, 101  
 Guinot, B. 105, 359  
 Gull, T.R. 114, 414  
 Gunn, J.E. 106, 221  
 Gurtovenko, E.A. 106, 378 (47, 193)  
 Gurzadyan, V.G. 114, 71  
 Gustafsson, B. 115, 145

- Haass, J. 108, 265  
 Habing, H.J. 108, 412  
 Hack, M. 106, 98; 107, 200; 113, 250  
 Haefner, R. 109, 171  
 Hagen, W. 114, 245  
 Hahn, G. 107, 414 (47, 533); 114, 420 (50, 73)  
 Halbwachs, J.L. 107, 414 (47, 523)  
 Hallin, R. 106, 327  
 Halpern, J.B. 107, 385  
 Hamann, W.-R. 116, 273  
 Hameury, J.M. 111, 242  
 Hammerschlag-Hensberge, G. 106, 339  
 Hamzaoglu, E. 106, 176; 109, 131; 110, 105; 114, 373; 114, 419 (50, 1)  
 Hanisch, R.J. 111, 97; 116, 137  
 Hanner, M. 110, 355  
 Hardorp, J. 105, 120; 107, 311  
 Harmanec, P. 115, 138  
 Harris, A.W. 115, 257  
 Harris, D.E. 111, 299  
 Harten, R.H. 107, 354; 111, 212 (49, 137)  
 Harvey, J.W. 106, 181 (47, 145)  
 Harwit, M. 107, 186  
 Hascoët, J.C. 115, 217 (50, 195)  
 Haslam, C.G.T. 106, 181 (47, 1); 109, 145  
 Hassan, S.M. 106, 379 (47, 247)  
 Hauck, B. 108, 373; 114, 23  
 Hauschildt, M. 112, 386; 114, 407  
 Havnes, O. 110, 203  
 Hazlehurst, J. 109, 117  
 Hearn, A.G. 114, 303; 116, 296  
 Heber, U. 116, 273  
 Heck, A. 106, 115; 107, 205; 109, 274; 111, 120; 116, 80  
 Heckathorn, J.N. 114, 414  
 Heckman, T.M. 106, 163  
 Hefele, H. 108, 102  
 Heidmann, J. 105, 188  
 Heintz, W.D. 107, 415 (47, 569)  
 Heintzmann, H. 111, L4  
 Helmer, G. 111, 151  
 Helmer, L. 111, 209 (49, 13)  
 Hempe, K. 107, 36; 115, 133  
 Henkel, C. 107, L10; 109, 344  
 Hénou, M. 114, 211  
 Hénoux, J.C. 108, 61  
 Hensberge, H. 106, 137  
 Hensler, G. 114, 309; 114, 319  
 Herbst, E. 111, 76  
 Hering, R. 115, 197  
 Hermsen, W. 105, 164; 107, 390; 111, 233; 115, 404  
 Herold, H. 115, 90  
 Herter, T. 109, 223  
 Heske, A. 113, 170  
 Heydari-Malayeri, M. 111, L11; 113, 118  
 Heyvaerts, J. 111, 104; 111, 242  
 Hilaire, G. 115, 216 (50, 147)  
 Hildebrand, R.H. 110, L18  
 Hill, P. 108, 157  
 Hill, P.W. 106, 254  
 Hillebrandt, W. 110, L3  
 Hippelein, H. 105, 329  
 Hirth, W. 107, 178; 113, 340; 115, 428  
 Hjalmarsen, A. 107, 128; 113, L18  
 Ho, P.T.P. 113, 155  
 Hoang-Binh, D. 112, L3  
 Hoekstra, R. 115, 217 (50, 233)  
 Hoffmann, M. 107, 415 (47, 561); 108, 416 (48, 85)  
 Höflich, P. 112, 76  
 Hofmann, R.G. 116, 179  
 Holm, A. 112, 341  
 Hopp, U. 109, 238  
 Höppner, W. 109, 117  
 Horedt, G.P. 106, 29; 110, 209  
 House, L. 111, 306  
 House, L.L. 116, 217  
 Hua, C.T. 116, 312  
 Huang, J.-H. 113, 9  
 Huang, K.-L. 113, 9  
 Huang, R.Q. 112, 281; 116, 348  
 Huang Chang-Chun 106, 179 (46, 369)  
 Huba, J.D. 105, 221  
 Huchtmeier, W.K. 109, 155; 109, 331; 110, 121; 111, 193  
 Huebner, W.F. 108, 221  
 Hughes, V.A. 106, 171; 111, 358  
 Hultqvist, L. 115, 145  
 Hummel, E. 106, 183; 114, 400; 115, 293  
 Hunger, K. 107, 93; 114, L11; 116, 64  
 Huntress, W.T., Jr. 114, 275  
 Hurley, K. 109, L9  
 Hut, P. 106, 245; 110, 37; 116, 351  
 Hutschenreiter, G. 106, 112  
 Iijima, T. 116, 210  
 Illing, R. 111, 306; 116, 217  
 Ilovaisky, S.A. 106, 339; 109, L1; 110, 316; 111, L9; 112, 68; 114, L7  
 Imbert, M. 106, 380 (47, 319)  
 Isaacman, R. 113, 231  
 Israel, F.P. 105, 229  
 Issersted, J. 114, 419 (50, 7)  
 Isserstedt, J. 115, 97  
 Jackson, W.M. 107, 385  
 Jaeggi, M. 107, 88; 109, 305  
 Jägers, W. 105, 278; 112, 180 (49, 529)  
 Jakobsen, P. 106, 375  
 Jantzen, R.T. 114, 219  
 Jaschek, M. 107, 215; 110, 181 (48, 363)  
 Jasiewicz, G. 111, 211 (49, 99)  
 Jeandenans, P. 115, 216 (50, 147)  
 Jelénković, B. 106, 327  
 Jenkner, H. 106, 379 (47, 221)  
 Jie-Hao Huang 107, 258  
 Jiménez, J. 111, 260  
 Johansson, L.E.B. 107, 128  
 Johnson, H.R. 111, 210 (49, 77)  
 Johnston, K.J. 108, 157  
 Joncas, G. 111, 117  
 Jörsäter, S. 110, 336  
 Joubert, M. 106, 16; 109, 179  
 Jørgensen, H.E. 108, 99  
 Ju, K.H. 112, 396 (49, 715)  
 Kaastra, J.S. 109, L5  
 Kafatos, M. 109, 136  
 Kaiser, D. 115, 218 (50, 261)  
 Kaisig, M. 116, 332  
 Kalberla, P.M.K. 106, 167; 106, 180 (46, 389); 106, 190; 115, 223  
 Kalkofen, W. 108, 42; 110, 18  
 Kaltenebach, J. 114, 85  
 Kanbach, G. 105, 164; 107, 390; 115, 404  
 Kane, S.R. 108, 306  
 Kapahi, V.K. 106, 181 (46, 473)  
 Kaplan, G.H. 105, 359  
 Käppler, F. 105, 270  
 Karakula, S. 107, 376  
 Kardashev, N.S. 109, 340  
 Karimie, M.T. 108, 416 (48, 85); 112, 179 (49, 497)  
 Karner, C. 107, 161; 107, 166  
 Kastner, S.O. 108, 361  
 Katger-Merkelijn, J.K. 106, 181 (46, 473)  
 Kato, K. 113, 135  
 Kaufmann, J.P. 114, 420 (50, 77)  
 Kázis, I. 111, 239  
 Keenan, P.C. 106, 115  
 Ke-Liang Huang 107, 258  
 Kemper, P.R. 114, 275  
 Kendziorra, E. 107, 350  
 Kenyon, S.J. 106, 109  
 Kepa, A. 116, 158  
 Kesteven, M.J. 113, 211  
 Kilkenny, D. 106, 254  
 Kim, I.S. 114, 347  
 Kindl, C. 116, 265  
 Kinoshita, H. 105, 359  
 Kippenhahn, R. 114, 77  
 Kisielinski, M. 106, 327  
 Kjaergaard, P. 106, 180 (46, 375); 115, 145  
 Klare, G. 113, 76  
 Klein, U. 105, 188; 108, 176; 116, 164; 116, 175  
 Klinkhamer, F.R. 106, 245; 107, 235  
 Klock, B.L. 114, 95  
 Kneer, F. 113, 129  
 Knobloch, E. 113, 261  
 Knoechel, G. 110, 263  
 Knude, J. 111, 210 (49, 69)  
 Koechlin, L. 115, 253  
 Koester, D. 108, 406; 109, 7; 113, L13; 113, 173; 116, 147; 116, 341  
 Kohoutek, L. 114, 147; 115, 420  
 Kolosov, B.I. 113, 179  
 Kondo, Y. 115, 217 (50, 233)

- Kontizas, E. 108, 344; 111, 209 (49, 1)  
 Kontizas, M. 108, 344; 111, 209 (49, 1)  
 Koo, D.C. 105, 107  
 Koorneef, J. 106, 381 (47, 341); 107, 247  
 Köppen, J. 105, 300; 112, 174  
 Kostik, R.I. 106, 378 (47, 193); 115, 104  
 Kotanyi, C.G. 106, 183  
 Koubsky, P. 115, 138  
 Koutchmy, S. 114, 347  
 Kovalevsky, J. 116, 89  
 Kraan-Korteweg, R.C. 107, 414 (47, 505)  
 Krassner, J. 109, 223; 114, 19  
 Krautter, J. 106, 25; 113, 76  
 Kreidl, T. 106, 379 (47, 221)  
 Kreitschmann, J. 111, 255  
 Krelowski, J. 113, 176  
 Kresáková, M. 116, 201  
 Kron, R.G. 105, 107  
 Kronberg, P.P. 108, 416 (48, 137)  
 Krpata, J. 115, 138  
 Krügel, E. 105, 342; 110, 181 (48, 345)  
 Krumm, N. 116, 237  
 Kudritzki, R.P. 106, 254; 108, 387; 114, L11  
 Kühne, C. 115, 216 (50, 173)  
 Kuipers, J. 114, L4  
 Kuin, N.P.M. 108, L1; 112, 366; 114, 303  
 Kulkarni, S. 112, 120  
 Kundu, M.R. 108, 188  
 Kuperus, M. 113, 324  
 Kusch, H.J. 116, 255  
 Kuzmin, A.D. 109, 340  
 Kwiatkowski, M. 108, 127; 112, 337  
 Labeyrie, A. 106, 235; 115, 253  
 Laclare, F. 110, 181 (48, 371)  
 Lacroix, G. 115, 54  
 Lafon, G. 113, 118  
 Lafon, J.-P.J. 106, 345; 106, 358  
 Lafont, S. 106, 201  
 Lagerkvist, C.I. 107, 412 (47, 447); 107, 414 (47, 513); 107, 414 (47, 533); 114, 420 (50, 23); 114, 420 (50, 73); 115, 218 (50, 277)  
 Lam, S.K. 115, 217 (50, 195)  
 Lamers, H.J.G.L.M. 105, 85; 106, 137  
 Lamontagne, R. 114, 135  
 Lampens, P. 115, 413  
 Landi Degl'Innocenti, E. 108, 416 (48, 81); 110, 25; 112, 395 (49, 677)  
 Lange, A. 114, 420 (50, 77)  
 Langer, W.D. 107, 107  
 La Padula, C. 106, 174; 108, 249  
 Lapasset, E. 114, 419 (50, 13)  
 Laques, P. 108, 296  
 Lari, C. 110, 169  
 Larson, H.P. 116, 179  
 Lasry, J.M. 111, 104  
 Laval, A. 115, 61  
 Law, W.-Y. 108, 118  
 Leblanc, Y. 106, 94; 111, 284  
 Lebrun, F. 105, 159; 105, 164; 107, 390; 115, 404  
 Lecacheux, A. 106, 94  
 Lecacheux, J. 108, 296; 111, 151; 113, L1  
 Le Contel, J.-M. 107, 406  
 Ledoux, P. 108, 49  
 Leer, E. 111, 317  
 Lee Van Suu, A. 111, 372  
 Lefèvre, J. 114, 341  
 Legait, A. 108, 287  
 Leinert, C. 105, 364; 110, 111; 110, 115; 110, 355  
 Leister, N.V. 110, 181 (48, 371)  
 Leitherer, C. 108, 102  
 Lelièvre, G. 109, 95; 110, L11; 113, L1  
 Lenzen, R. 108, 274  
 Leorat, J. 105, 6  
 Lequeux, J. 113, L15; 114, 409  
 Lerche, I. 107, 148; 116, 10  
 Leroy, B. 112, 84; 112, 93  
 Leroy, M. 106, 345; 106, 358  
 Lestrade, J.-F. 105, 42; 116, 75  
 Levin, B.N. 111, 71  
 Lewin, W.H.G. 113, 328  
 Li, T.P. 116, 95  
 Lichti, G.G. 105, 164  
 Liller, W. 114, 213  
 Lindblad, P.O. 110, 336  
 Lindegren, L. 110, 156  
 Lingenfelter, R.E. 113, 9  
 Liseau, R. 107, 354  
 Little, L.T. 112, 49  
 Liu, Y.-Z. 113, 192  
 Livio, M. 105, 37; 109, 201; 112, 190; 116, 286  
 Llorente de Andrés, F. 107, 43; 111, 260  
 Loewenstein, R.F. 110, L18  
 Loiseau, N. 108, 415 (48, 71)  
 Loose, H.H. 105, 342  
 López, J.A. 107, 252  
 López-Puertas, M. 112, 229  
 Loucif, M.L. 112, 287  
 Louise, R. 107, 416 (47, 575); 114, 205  
 Lucas, R. 106, 201  
 Lucke, P.B. 105, 318  
 Luinge, W. 112, 178 (49, 427)  
 Lundin, L. 106, 327  
 Lustig, G. 106, 151  
 Lynas-Gray, A.E. 106, 254  
 Lynga, G. 109, 213  
 Macchetto, F. 106, 266  
 MacConnell, D.J. 110, 181 (48, 355)  
 Maceroni, C. 106, 378 (47, 211); 109, 368; 111, 212 (49, 123)  
 Machado, L. 106, 180 (46, 371)  
 Machado, L.E. 107, 413 (47, 463)  
 Machado, M.E. 108, 61  
 Maciel, W.J. 106, 1  
 Mader, G.L. 111, 212 (49, 137)  
 Madsen, C. 110, 198  
 Maeder, A. 105, 149; 108, 148; 114, 409  
 Magnan, C. 112, 287  
 Magnenat, P. 108, 89  
 Maitzen, H.M. 115, 275  
 Malagnini, M.L. 114, 170  
 Malaise, D. 114, 102  
 Manara, A. 108, 141; 112, 179 (49, 509); 114, 388  
 Manchanda, R.K. 108, 249  
 Mancuso, S. 111, 212 (49, 129)  
 Mangeney, A. 108, 161  
 Mannervik, S. 106, 327  
 Mantegazza, L. 111, 295; 112, 395 (49, 709)  
 Mantovani, F. 105, 176; 105, 200; 110, 345  
 Marano, B. 105, 200; 110, 183 (48, 453); 113, 15  
 Marcelin, M. 105, 76; 108, 134  
 Mardirossian, F. 109, 366; 111, 86; 111, 210 (49, 89); 114, 74  
 Marenbach, G. 108, 95  
 Marilli, E. 106, 311; 115, 280  
 Marsden, B.G. 114, 147  
 Marsoglu, A. 112, 133  
 Martens, L. 106, 317  
 Martens, P.C.H. 108, L1; 112, 366; 113, 324  
 Martin, R.N. 113, 155; 115, 185  
 Martin-Pintado, J. 107, L10; 110, 181 (48, 345)  
 Marxer, N. 116, 265  
 Masereel, C. 105, 293  
 Masnou, J.L. 105, 164  
 Masson, C.R. 114, 270  
 Materne, J. 109, 238; 111, 193; 113, 85  
 Matese, J.J. 106, L9  
 Mathez, G. 113, 336  
 Mathis, J.S. 105, 372  
 Mathys, G. 108, 213  
 Matraka, B. 107, 283  
 Matteucci, F. 105, 140; 110, 54  
 Matthews, K. 105, 229  
 Maurice, E. 113, L15  
 Mauron, N. 107, 415 (47, 547)  
 Mayer-Hasselwander, H.A. 105, 164; 107, 390; 115, 404  
 Mayor, M. 105, 318; 106, 221; 109, 258; 110, 241; 111, 224  
 Maza, J. 111, 375  
 Mazodier, B. 115, 216 (50, 147)  
 Mazzitelli, I. 113, 303  
 Mazzoleni, F. 112, 179 (49, 509); 114, 388  
 Mazzucconi, F. 116, 188  
 McCarroll, R. 106, 197  
 McCarthy, D.D. 105, 359  
 McKenzie, J.F. 111, 317; 116, 191  
 Meaburn, J. 114, 367  
 Meade, M.R. 106, 381 (47, 341)

- Mebold, U. 106, 180 (46, 389); 106, 190; 115, 223  
 Mein, N. 114, 192  
 Mein, P. 111, 136; 115, 367  
 Meire, R. 110, 152  
 Melchiorri, F. 105, 184  
 Melnick, J. 107, 23; 111, 375  
 Méndez, R.H. 116, L5  
 Menge de Freitas, S. 112, 395 (49, 687)  
 Merlin, Ph. 111, 151  
 Mermilliod, J.-C. 109, 37; 109, 48  
 Messina, A. 114, L1  
 Metz, K. 109, 171  
 Meurs, E.J.A. 115, 217 (50, 217)  
 Mewe, R. 110, 180 (48, 305)  
 Meyer, C. 111, 151  
 Meyer, F. 106, 34  
 Meyer, G. 107, 161; 107, 166  
 Meyer-Hofmeister, E. 106, 34  
 Meyer-Vernet, N. 105, 98  
 Meylan, G. 107, 414 (47, 483); 108, 148; 110, 348  
 Mezaoui, A. 109, 23  
 Mezger, P.G. 105, 372; 108, 227  
 Mezzetti, M. 109, 366; 111, 86; 111, 210 (49, 89); 114, 74  
 Mianes, P. 111, 151  
 Michalitsianos, A.G. 109, 136  
 Michalke, R. 106, 379 (47, 221)  
 Michard, R. 112, 180 (49, 591)  
 Middelkoop, F. 107, 31; 110, 30; 113, 1  
 Mignard, F. 111, 211 (49, 105); 111, 211 (49, 107)  
 Milano, L. 106, 378 (47, 211); 109, 368; 111, 212 (49, 123); 111, 212 (49, 129)  
 Miley, G.K. 105, 278; 106, 163  
 Millet, J. 109, 228; 115, 8  
 Milne, D.K. 115, 217 (50, 209)  
 Mitalas, R. 108, 55  
 Miyamoto, M. 115, 216 (50, 173)  
 Moffat, A.F.J. 108, 326; 110, 263; 114, 135  
 Möllenhoff, C. 108, 130  
 Molteni, D. 111, 365  
 Monnet, G. 106, 16; 115, 61  
 Moorwood, A.F.M. 107, 276; 115, 84  
 Morales Durán, C. 108, 416 (48, 139)  
 Morando, B. 111, 151  
 Morel, P.-J. 105, 323; 106, 378 (47, 217); 107, 406  
 Moreno, V. 111, 260  
 Morossi, C. 106, 332; 114, 170  
 Morras, R. 115, 249  
 Morris, D. 106, 180 (46, 421)  
 Morris, M. 111, 239  
 Motch, C. 109, L1; 110, 316; 111, L9; 112, 355; 114, L7  
 Mouchet, M. 106, 339; 112, 355  
 Mouglin, B. 115, 216 (50, 147)  
 Mukai, T. 107, 97  
 Mullan, D.J. 108, 251; 108, 279  
 Müller, E. 114, 53  
 Mundt, R. 107, 412 (47, 419); 112, 174  
 Musielak, Z. 105, 23  
 Mutel, R.L. 106, 21  
 Muxlow, T. 116, 60  
 Nadal, R. 115, 23  
 Nanni, M. 105, 176  
 Naranan, S. 113, 167  
 Narayan, R. 113, L3  
 Natale, V. 105, 184  
 Naves, D. 111, 151  
 Nepveu, M. 105, 15; 112, 223; 113, 277; 114, 337  
 Nesis, A. 111, 272  
 Netto, E. 106, 180 (46, 371)  
 Netto, E.R. 107, 413 (47, 463)  
 Neugebauer, G. 105, 229  
 Newkirk, G., Jr. 113, 129  
 Nguyen-Quang-Rieu 107, 128; 107, 229  
 Nicolet, B. 106, 378 (47, 199); 110, 183 (48, 485)  
 Nicoll, J.F. 115, 398  
 Niel, M. 109, L9  
 Niemela, V.S. 108, 326; 116, L5  
 Nieto, J.L. 107, 415 (47, 535); 108, 334; 109, 95; 112, 321  
 Nikolaev, N.Ya. 109, 340  
 Nikolov, A. 115, 218 (50, 261)  
 Nikolsky, G.M. 114, 347  
 Noël, F. 107, 413 (47, 481)  
 Noels, A. 105, 293; 108, 49; 110, 50; 113, 219  
 Nordh, H.L. 115, 308  
 Nordling, C. 106, 327  
 Nordlund, Å. 107, 1  
 Nordström, B. 112, 180 (49, 571)  
 Norman, M.L. 113, 285  
 North, P. 108, 373; 114, 23  
 Nottale, L. 110, 9; 113, 223; 113, 336; 114, 261  
 Novikov, A.Yu. 109, 340  
 Nowakowski, L. 116, 158  
 Núñez, J. 110, 23; 110, 95  
 Nussbaumer, H. 106, 379 (47, 257); 109, 271; 110, L1; 110, 295; 113, 21; 115, 205; 116, 265  
 Oberlacher, D. 106, 379 (47, 221)  
 Oberto, Y. 107, 416 (47, 595)  
 Oblak, E. 115, 216 (50, 147)  
 Occhionero, F. 107, 172  
 Ochsenbein, F. 107, 414 (47, 523)  
 Olano, C.A. 112, 195  
 Olofsson, H. 107, 128; 113, L18  
 Olsen, E.H. 110, 179 (48, 165); 110, 215  
 Omont, A. 106, 201  
 Opher, R. 108, 1; 109, 191  
 Oranje, B.J. 109, 32; 110, 30  
 Ortolani, S. 116, 43  
 Östreicher, R. 114, 328  
 Ounnas, C. 112, 396 (49, 715)  
 Ozeroy, L.M. 111, 1; 111, 16  
 Padrielli, L. 105, 200; 106, 181 (46, 473)  
 Palagi, F. 111, 211 (49, 101)  
 Panagia, N. 105, 372; 106, 266; 107, 145; 107, 354; 111, 130  
 Pankonin, V. 110, 181 (48, 345)  
 Pannunzio, R. 106, 181 (47, 159); 107, 362  
 Papadopoulos, K. 112, 377  
 Parisot, J.P. 115, 216 (50, 147)  
 Parma, P. 105, 200; 110, 169; 114, 400; 115, 423  
 Pasinetti, L.E. 107, 326  
 Paternò, L. 105, 133  
 Paturel, G. 106, 182 (47, 171); 107, 413 (47, 467); 113, 61; 114, 421 (50, 101)  
 Paul, J.A. 105, 164; 107, 390; 115, 404  
 Pauliny-Toth, I.I.K. 108, 157  
 Pauls, T. 112, 120  
 Pauls, T.A. 110, L20; 115, 185  
 Paulus, G. 116, 183  
 Pedersen, H. 110, 316  
 Pédoussaut, A. 107, 215; 115, 23  
 Pelat, D. 105, 335  
 Pellat, R. 109, 228; 115, 8  
 Pellet, A. 106, 214  
 Pence, W.D. 112, 394 (49, 631)  
 Pendrel, J.V. 112, 181  
 Peng, Q.-H. 113, 9  
 Penna, J.L. 110, 183 (48, 485)  
 Perdan, J. 112, 35  
 Perie, M. 107, 413 (47, 467)  
 Perinotto, M. 108, 314; 111, 130  
 Persi, P. 111, L7; 112, 292  
 Peton, A. 114, 1  
 Petrini, D. 111, 279  
 Pettersson, B. 107, 414 (47, 533)  
 Pham-Van, J. 111, 211 (49, 105); 111, 211 (49, 107)  
 Phillips, J.P. 116, 130; 116, 293  
 Phillips, R.B. 106, 21  
 Picat, J.P. 113, L1  
 Picchio, G. 111, 326  
 Pick, M. 108, 161; 111, 306  
 Pietsch, W. 107, 350  
 Piirola, V. 110, 351  
 Piironen, J.O. 112, 172  
 Pineau des Forêts, G. 110, 163  
 Pineault, S. 109, 294; 114, 177  
 Pinkau, K. 105, 164  
 Pipher, J.L. 109, 223  
 Pitault, A. 108, 195  
 Pitz, E. 110, 355  
 Planck, B. 105, 364; 110, 111; 110, 115  
 Polcaro, V.F. 106, 174; 108, 249  
 Ponz, D.P. 112, 341  
 Popov, M.V. 109, 340  
 Pottasch, S.R. 106, 1; 106, 229; 108, 111; 109, 182  
 Pouquet, A. 105, 6  
 Praderie, F. 107, 75



- Prasad, S.S. 114, 275  
 Preussner, P.-R. 115, 128  
 Prévot, L. 113, L15  
 Prévot-Burnichon, M.-L. 113, L15  
 Priest, E.R. 113, 269  
 Pringle, J.E. 114, L4  
 Puel, F. 115, 216 (50, 147)  
 Puget, J.L. 106, 293  
 Puget, P. 114, 351  
  
 Qiu-He Peng 107, 258  
 Queiroz, M. 110, 183 (48, 485)  
 Querci, F. 111, 120  
 Querci, M. 111, 120  
  
 Radhakrishnan, V. 106, 105  
 Rafanelli, P. 108, 243; 116, 43  
 Rafferty, T.J. 114, 95; 114, 420 (50, 27)  
 Rahe, J. 106, 70; 107, 385; 110, 246; 110, 281; 113, 76  
 Rahunen, T. 109, 66  
 Rakos, K.D. 106, 379 (47, 221)  
 Rampazzo, R. 115, 388  
 Raoult, A. 108, 161  
 Rapisarda, M. 111, 365  
 Rayet, M. 116, 183  
 Re, S. 111, 365  
 Reboul, H.J. 108, 85  
 Recillas-Cruz, E. 112, 361  
 Reed, B.C. 111, 81; 112, 179 (49, 521)  
 Rees, D.E. 115, 1  
 Refsdal, S. 109, 117  
 Regev, O. 114, 188  
 Rego, M. 113, 94  
 Reich, W. 106, 314; 110, 180 (48, 219); 113, 348; 115, 428  
 Reif, K. 106, 190  
 Reimers, D. 107, 36; 107, 292; 116, 341  
 Reipurth, B. 112, 180 (49, 571)  
 Remie, H. 105, 85  
 Rephaeli, Y. 114, 405  
 Reppin, C. 107, 350  
 Retallack, D.S. 106, 105  
 Rice, J.B. 106, 7  
 Richardson, K.J. 116, 130; 116, 293  
 Richter, I. 110, 111; 110, 115; 110, 355  
 Richter, O.-G. 109, 155; 109, 331; 111, 193  
 Ricketts, M. 111, L9  
 Rickman, H. 114, 420 (50, 23)  
 Ricort, G. 107, 333  
 Righini, A. 107, 333; 109, 233  
 Robba, N.R. 111, 365  
 Roberts, W.W., Jr. 108, 76  
 Robertson, J.G. 111, 299  
 Robin, A. 115, 218 (50, 251)  
 Robinson, R.D. 108, 322  
 Robnik, M. 107, 222  
 Robson, E.I. 116, 130  
 Rocca, A. 111, 252  
 Rocca-Volmerange, B. 109, 355; 113, L15  
 Rodonò, M. 106, 311  
  
 Rodrigo, R. 112, 229  
 Rohlf, K. 105, 296; 112, 116; 113, 237  
 Roland, G. 108, 201  
 Roland, J. 107, 267; 116, 60  
 Romano, G. 105, 369  
 Rood, H.J. 108, L7  
 Roos, N. 114, 41  
 Rosa, M. 105, 410; 108, 339  
 Rosado, M. 115, 61  
 Röser, H.-J. 105, 362  
 Rosino, L. 108, 243; 116, 35; 116, 43  
 Roth, M. 106, 89  
 Rousseau, J. 111, 151  
 Rousseau, M. 107, 413 (47, 467)  
 Rubio, M. 111, 284  
 Rucinski, S.M. 112, 273  
 Ruder, H. 115, 90  
 Rudnicki, K. 105, 21  
 Ruf, K. 113, 155; 115, 185  
 Rufener, F. 110, 184 (48, 503)  
 Ruffini, R. 114, 219  
 Ruiz, M.T. 111, 375  
 Ruiz del Arbol, J.A. 107, 43  
 Rusconi, L. 113, 250  
 Russo, G. 106, 378 (47, 211); 107, 197; 109, 274; 109, 368; 111, 212 (49, 123)  
 Rutten, R.J. 115, 104  
 Rydbeck, G. 113, L18  
  
 Sabbadin, F. 106, 176; 109, 131; 110, 105; 114, 419 (50, 1)  
 Sacco, B. 105, 164  
 Sadakane, K. 113, 135  
 Saha, H.P. 116, 224  
 Salas, L. 111, 43  
 Saliba, G.J. 115, 1  
 Salpeter E.E. 110, 300  
 Salter, C.J. 105, 176; 106, 181 (47, 1); 109, 145  
 Salzman, J. 109, 201  
 Sambuco, A.M. 107, 414 (47, 485)  
 Sandqvist, A. 110, 336  
 Santangelo, P. 107, 172  
 Santos, E. 106, 379 (47, 221)  
 Sarazin, C.L. 108, L7  
 Sargent, A.I. 115, 308  
 Sato, N. 107, 320  
 Sauval, A.J. 108, 201; 111, 210 (49, 77)  
 Savedoff, M.P. 107, L3; 112, L1  
 Sawyer, C. 111, 306; 116, 217  
 Scalise, E. Jr. 107, 272  
 Scaltriti, F. 115, 321  
 Scardia, M. 106, 182 (47, 167); 107, 362; 108, 141; 112, 179 (49, 503); 114, 419 (50, 19)  
 Scarsi, L. 105, 164  
 Schatzman, M. 111, 104  
 Schermann, A. 106, 379 (47, 221)  
 Schiffer, F.H. 112, 341  
 Schiffer, R. 116, 1  
 Schilizzi, R.T. 105, 278; 114, 400  
 Schlickeiser, R. 106, L5; 107, 148; 107, 186; 107, 378; 113, 314; 116, 10  
  
 Schlosser, W. 114, 60; 115, 115  
 Schmadel, L.D. 110, 198; 112, 395 (49, 691)  
 Schmahl, E.J. 108, 188  
 Schmid-Burgk, J. 108, 169  
 Schmidt-Kaler, T. 105, 400; 107, 311; 114, 60; 115, 115  
 Schmieder, B. 114, 192  
 Schmutz, W. 106, 379 (47, 257)  
 Schneider, J. 110, L11; 115, 54  
 Schnell, A. 106, 379 (47, 221)  
 Schober, H.J. 105, 419; 107, 402; 108, 415 (48, 57); 115, 257  
 Schoembs, R. 115, 190  
 Scholl, H. 111, 346; 112, 157  
 Scholz, M. 108, 387; 112, 76  
 Schönberner, D. 107, 93; 113, L22; 116, 273  
 Schönfelder, V. 110, 138  
 Schröder, K. 116, 255  
 Schroll, A. 107, 402  
 Schrüfer, E. 111, L4  
 Schubart, J. 114, 200  
 Schulte-Ladbeck, R. 114, 328  
 Schulz, H. 115, 209  
 Schuster, H.-E. 112, 180 (49, 577)  
 Schwartz, S.J. 112, 84; 112, 93  
 Schwarz, M.P. 107, 101  
 Schwarz, U.J. 110, 100; 112, L6  
 Schwerdtfeger, H. 116, 117  
 Scufflaire, R. 110, 50; 111, 371; 113, 219  
 Searle, L. 110, 61; 110, 79  
 Sedmak, G. 113, 250  
 Segal, I.E. 115, 398  
 Seggewiss, W. 114, 135  
 Seidelmann, P.K. 105, 359  
 Seidensticker, K.J. 114, 60  
 Seitz, M. 109, 10  
 Seldner, M. 112, 321  
 Selvelli, P.L. 106, 98; 106, 380 (47, 295); 107, 200  
 Send, U. 112, 235  
 Serra, G. 106, 293  
 Serrano, A. 106, 89  
 Sestili, M. 111, 312  
 Severino, G. 109, 90  
 Severny, A.B. 116, 312  
 Shane, W.W. 112, 396 (49, 745); 116, 237  
 Sharma, R.R. 112, 377  
 Sharpless, S. 109, 223  
 Shaver, P.A. 105, 306; 106, 105; 112, 120; 115, 293  
 Shaviv, G. 109, 201; 110, 300  
 Sheridan, K.V. 116, 217  
 Sherwood, W.A. 115, 218 (50, 261)  
 Shine, R.A. 111, 136; 115, 367  
 Shostak, G.S. 105, 351; 115, 293  
 Sicardy, B. 108, 296  
 Siciliano, F. 106, 181 (47, 159)  
 Sieber, W. 106, 180 (46, 421); 109, 340; 113, 311; 113, 314  
 Siewert, C.E. 109, 195



- Simard-Normandin, M. 108, 416 (48, 137)
- Simien, F. 106, 214
- Simmons, G.J. 112, 209
- Simon, G. 111, 136; 114, 192; 115, 367
- Simon, J.L. 114, 125
- Simon, K.P. 106, 254; 107, 313; 108, 387
- Singh, K.P. 113, 73; 113, 167
- Singh, P.D. 108, 369; 113, 199
- Smaldone, L.A. 107, 414 (47, 485)
- Smarr, L. 113, 285
- Smeyers, P. 106, 317
- Smirnova, T.V. 109, 340
- Smith, L.J. 106, 379 (47, 257)
- Smith, M.D. 113, 285
- Smoluchowski, R. 110, 43
- Smylie, D.E. 112, 181
- Söderhjelm, S. 107, 54; 110, 156
- Soffel, M.H. 116, 111
- Soglasnov, V.A. 109, 340
- Solf, J. 106, 307; 113, 142; 116, 54
- Solheim, J.E. 111, 212 (49, 109)
- Sollazzo, C. 106, 378 (47, 211); 107, 197; 109, 274
- Soltau, D. 107, 211
- Sotirovski, P. 106, 181 (47, 145)
- Souffrin, P. 106, 14; 109, 205
- Soulié, G. 107, 417 (47, 611); 111, 151
- Souriau, J.M. 108, 256
- Spaenhauer, A. 107, 412 (47, 441)
- Spencer, J.H. 108, 157
- Spicer, D.S. 105, 221
- Spite, F. 115, 357
- Spite, M. 115, 357
- Spreckels, H. 108, 206
- Spruit, H.C. 106, 58; 108, 348; 108, 356; 113, 261; 113, 350
- Srinivasan, G. 108, 143
- Staaf, Ö. 106, 327
- Stahl, O. 108, 102; 110, 272; 112, 111; 113, 76; 114, 131
- Standish, E.M., Jr. 114, 297; 115, 20
- Stannard, D. 116, 60
- Stasińska, G. 106, 158; 110, 180 (48, 299)
- Staubert, R. 107, 350
- Staude, H.J. 109, 320
- Steenbock, W. 107, 93
- Steffen, P. 113, 348
- Stein, R.F. 105, 417; 106, 9
- Steinle, H. 107, 350
- Steinolfson, R.S. 115, 39; 115, 50
- Stellmacher, G. 114, 347
- Steppe, H. 113, 150
- Stewart, R.T. 116, 217
- Stift, M.J. 112, 149
- Stobie, R.S. 107, 415 (47, 541)
- Stoffel, H. 106, 181 (47, 1)
- Storey, P.J. 109, 271; 110, 295; 113, 21; 115, 205
- Straižys, V. 108, 373
- Strong, A.W. 105, 159; 107, 390; 115, 404
- Struble, M.F. 108, L7
- Stutzki, J. 111, 201
- Subrahmanya, C.R. 107, 190
- Subramanian, S. 110, 324
- Surdej, A. 105, 242
- Surdej, J. 105, 242; 109, 101; 114, 182; 115, 257; 116, 80
- Sutton, E.C. 110, 324
- Swanenburg, B.N. 105, 164
- Swarup, G. 107, 190
- Swings, J.P. 105, 242; 114, 182
- Sybesma, C.H.B. 111, 229
- Szabados, L. 107, 415 (47, 541)
- Takagi, S. 112, 11
- Takalo, L.O. 109, 4
- Takens, R.J. 113, 328
- Tammann, G.A. 106, 380 (47, 335)
- Tandberg-Hanssen, E. 114, 192
- Tarengi, M. 109, 238; 113, 46
- Tarrab, I. 109, 285; 113, 57
- Taylor, R.J. 109, 166
- Taylor, J.B. 107, L1
- Teerikorpi, P. 109, 314
- Tenorio-Tagle, G. 108, 25; 112, 1; 112, 104; 115, 207
- Terzan, A. 111, 151; 112, 396 (49, 715)
- Testerman, L. 108, 201
- Testor, G. 111, L11; 113, 118
- Texier, P. 115, 217 (50, 195)
- Thé, P.S. 106, 98
- Thévenin, F. 108, 195
- Thiele, U. 114, 357
- Thielheim, K.O. 108, 206; 116, 1
- Thomas, H.-C. 114, 77
- Thomasson, P. 106, 180 (46, 421)
- Thompson, D.J. 109, 352
- Thompson, R.W. 107, 11
- Thuillot, W. 111, 151
- Thum, C. 107, 368; 110, 181 (48, 345)
- Tielens, A.G.G.M. 114, 245
- Tinbergen, J. 105, 53
- Tjin A Djie, H.R.E. 106, 98
- Tkaczyk, W. 107, 376
- Tomas, M. 115, 217 (50, 195)
- Tomasi, P. 105, 176; 105, 200
- Tondeur, F. 116, 183
- Topaktas, L. 112, 178 (49, 475)
- Torbett, M. 110, 43
- Torra, J. 110, 23; 110, 95
- Torricelli-Ciamponi, G. 105, L1
- Townes, C.H. 110, 324
- Träger, F. 107, 161; 107, 166
- Traving, G. 105, 300
- Treffitz, E. 116, 224
- Treumann, R. 108, 161
- Trevese, D. 110, 238
- Triay, R. 108, 256
- Trottet, G. 108, 306; 111, 306
- Trümper, J. 107, 350
- Truran, J.W. 106, 109
- Tüg, H. 105, 395; 105, 400; 107, 311
- Tully, J. 106, 362
- Turnrose, B.E. 107, 11
- Turon, C. 110, 241
- Tutukov, A. 105, 342
- Ubertini, P. 106, 174; 108, 249
- Ukita, N. 112, 167
- Ulmschneider, P. 106, 9
- Ungerechts, H. 111, 201; 111, 339
- Urbanik, M. 105, 21
- Usowicz, J. 116, 158
- Vader, J.P. 113, 328
- Vagnetti, F. 114, L1
- Valentijn, E.A. 111, 50; 114, 208
- Valiron, P. 106, 197
- Vallée, J.P. 107, 416 (47, 601)
- Valsecchi, G.B. 115, 327; 116, 201
- Valtaoja, E. 111, 213
- van Albada, G.D. 108, 76; 115, 263
- Van Assche, W. 109, 166
- van Ballegooijen, A.A. 106, 43; 106, 58; 113, 99; 113, 350
- Vanbeveren, D. 105, 260; 113, 205; 115, 65; 115, 69
- van Breugel, W. 105, 278; 110, 225; 112, 180 (49, 529)
- van den Heuvel, E.P.J. 108, 143; 113, 328
- van den Oord, G.H.J. 107, 320; 109, 289
- van der Bij, M. 111, 372
- van der Hulst, J.M. 115, 263; 115, 293
- van der Klis, M. 106, 339; 114, 422 (50, 129); 116, 232
- van der Kruit, P.C. 105, 351; 110, 61; 110, 79; 115, 293
- Vanderriest, C. 106, L1; 110, L11
- van der Woerd, H. 111, 372; 113, 27
- van Duinen, R.J. 106, 381 (47, 341); 112, 178 (49, 427); 115, 308
- van Genderen, A.M. 105, 250; 107, 416 (47, 591); 111, 171; 111, 185; 112, 61; 115, 79
- Van Gent, R.H. 110, 183 (48, 457)
- van Gorkom, J.H. 112, 120; 115, 164
- Van Hamme, W. 105, 389; 107, 397; 107, 409; 116, 27
- Van Horn, H.M. 107, L3
- van Leer, B. 108, 76
- van Leeuwen, F. 107, 416 (47, 591)
- van Moorsel, G.A. 107, 66
- van Paradijs, J. 106, 339; 107, 51; 110, 316; 111, 372; 113, 27
- Van Rensbergen, W. 115, 69
- Van't Veer-Menneret, C. 107, 416 (47, 595)
- Vapillon, L. 111, 151
- Vauclair, G. 106, 67; 109, 7; 113, L13
- Vautherin, D. 112, 268
- Vázquez, M. 106, 261; 111, 266
- Vedrenne, G. 109, L9

- Veillet, C. 112, 277  
 Velden, L. 113, 340  
 Velusamy, T. 108, 188  
 Venkatakrishna, K.L. 107, 190  
 Ventura, J. 111, 242  
 Véron, P. 105, 405; 113, 46; 116, 60  
 Véron-Cetty, M.P. 105, 405; 113, 46  
 Vettolani, G. 105, 200; 110, 183 (48, 453); 113, 15  
 Vial, J.C. 111, 136; 115, 367  
 Vialeto, G. 108, 249  
 Viallefond, F. 115, 373  
 Vieira, G. 106, 180 (46, 371); 107, 413 (47, 463)  
 Vignato, A. 110, 238  
 Vigneau, J. 114, 422 (50, 119)  
 Vigouroux, G. 111, 211 (49, 105); 111, 211 (49, 107)  
 Vilhu, O. 109, 17; 110, 351  
 Vilmer, N. 108, 161; 108, 306  
 Vincent, A. 115, 216  
 Vincent, M. 115, 216 (50, 147)  
 Viner, M.R. 111, 358  
 Viotti, R. 112, 179 (49, 511)  
 Virdefors, B. 115, 347  
 Vittone, A. 111, 212 (49, 129)  
 Vittorio, N. 107, 172  
 Vivekanand, M. 113, L3  
 Vlahos, L. 108, 188; 112, 377  
 Voges, W. 107, 350  
 Vogt, N. 110, 182 (48, 383); 110, 281; 113, 76; 114, L11  
 Völk, H.J. 116, 191  
 von Uexküll, M. 113, 129  
 Vreux, J.M. 113, L10  
  
 Waelkens, C. 108, 51  
 Wagner, W. 111, 306; 116, 217  
 Walker, G.A.H. 106, 180 (46, 375); 115, 145  
 Wallerstein, G. 105, 219; 109, 136  
 Walmsley, C.M. 111, 339; 115, 185  
 Walter, H.G. 111, 357; 115, 197  
 Walter, K. 109, 107  
 Wampler, E.J. 114, 165  
 Wamsteker, W. 106, 105; 107, 240; 114, 422 (50, 141)  
 Wang, Y.-M. 107, 222; 112, 24; 113, 113  
 Ward, L. 106, 327  
 Wargau, W. 110, 246; 110, 281; 113, 76  
 Wassermann, C. 107, 283  
 Watanabe, T. 111, 333  
 Watt, G.D. 116, 130; 116, 293  
 Webbink, R.F. 106, 109  
 Wehlau, W.H. 106, 7  
 Wehrse, R. 108, 42; 109, 10; 110, 18  
 Weidemann, V. 108, 406; 109, 7; 113, L13; 116, 147  
 Weigert, A. 107, 283; 112, 281; 116, 348  
 Weiss, W. 106, 379 (47, 221)  
 Welter, G.L. 105, 237; 113, 113; 113, 277  
 Wendker, H.J. 113, 170; 116, L1  
 Wendlandt, H.-U. 111, 212 (49, 143)  
 Wesselius, P.R. 106, 381 (47, 341); 109, 182; 112, 178 (49, 427)  
 West, R.M. 106, 53; 110, 198; 111, 210 (49, 73); 111, 357; 112, 180 (49, 577)  
 Westerhout, G. 111, 212 (49, 137); 111, 212 (49, 143)  
 Westerlund, B.E. 105, 284  
 Westin, T.N.G. 112, 180 (49, 561)  
 White, G.J. 116, 130; 116, 293  
 Whitmire, D.P. 106, L9  
 Wiedemann, D. 114, 421 (50, 93)  
 Wiegandt, R. 105, 326; 106, 240  
 Wielebinski, R. 105, 188; 106, 112; 108, 176; 109, 340  
 Wiemer, H.-J. 112, 116  
 Wildeman, K.J. 112, 178 (49, 427)  
 Willems, F. 115, 213  
 Williams, P.M. 116, 293  
 Williamson, F. 115, 167  
 Willis, A.J. 106, 339; 106, 379 (47, 257)  
 Wills, R.D. 105, 164; 107, 390; 115, 404  
 Wilson, A.S. 107, 416 (47, 601); 115, 217 (50, 217)  
 Wilson, R.H., Jr. 114, 421 (50, 115)  
 Wilson, R.W. 107, 107  
 Wilson, T.L. 106, 167; 107, L10; 109, 344; 110, L20; 112, 394 (49, 607); 115, 185  
 Wilson, W.E. 106, 181 (47, 1); 109, 145  
 Wing, R.F. 111, 120  
 Wink, J.E. 108, 227  
 Winkler, C. 115, 115  
 Winkler, K.-H. A. 113, 285  
 Winnberg, A. 106, 180 (46, 389); 108, 412; 115, 223  
 Winnewisser, G. 109, 141; 111, 201; 111, 339  
 Winnewisser, M. 109, 141  
 Wissak, K. 105, 270  
 Witomsky, P. 111, 104  
 Witzel, A. 108, 157  
 Wizinowich, P. 111, 117  
 Wlérick, G. 105, 284; 110, L11; 111, 151  
 Wöhl, H. 106, 261; 109, 77; 111, 266; 114, 357  
 Wolf, B. 105, 313; 107, 412 (47, 419); 108, 102; 110, 246; 110, 272; 112, 111; 113, 76  
 Wolfendale, A.W. 116, 95  
 Wolszczan, A. 116, 158  
 Wooden II, W.H. 106, 179 (46, 347)  
 Woodgate, B.E. 115, 367  
 Wouterloot, J.G.A. 106, 171; 111, 358  
 Wragg, M.A. 113, 269  
 Wright, G.A.E. 109, 279  
 Wu, S.T. 114, 192  
 Wunner, G. 115, 90  
  
 Yahel, R.Z. 109, 1  
 Yamamoto, T. 107, 97; 109, 326  
 Yang, S. 106, 180 (46, 375)  
 Yilmaz, N. 113, 250  
 Yorke, H.W. 108, 25; 112, 1; 112, 104  
 Young, J.W. 115, 257  
  
 Zappalà, V., 107, 412 (47, 447); 108, 197; 110, 182 (48, 449); 114, 420 (50, 23); 114, 421 (50, 421); 115, 218 (50, 277)  
 Zdarsky, F. 115, 138  
 Zdziarski, A.A. 110, L7  
 Zeidler-K.T., E.M. 113, L13; 113, 173; 116, 147  
 Zekl, H. 108, 380; 113, 178  
 Zhugzhda, Y.D. 112, 16  
 Zieba, S. 105, 21  
 Zimmermann, H.U. 115, 167  
 Zimmermann, P. 108, 127; 112, 337  
 Zlobec, P. 109, 305  
 Zuiderwijk, E.J. 105, 254; 106, 339  
 zu Putlitz, G. 107, 161; 107, 166  
 Zvereva, A.M. 116, 312  
 Zwaan, C. 110, 30

## Annual Subject Index

**Astronomy and Astrophysics Volumes 105-116 (1982)**  
**Supplement Series, Volumes 47.1-50.2**

Volume and page numbers of articles published in the Supplement Series are printed in italics

The cross references for the keywords are stored in the computer. Therefore they are always printed, even if in the respective year no paper belonging to a special cross reference is published.

### A Stars

The Variable Shell Star HR 5999. VI. Strong Chromospheric and Transition Region Emission Lines in the Ultraviolet Spectrum of a Herbig Ae Star

*Tjin A Djie, H.R.E., Thé, P.S., Hack, M., Selvelli, P.L.* **106**, 98

On the Search for Transition Zone Lines in Late A Type Stars

*Crivellari, L., Praderie, F.* **107**, 75

Contribution to the Study of Composite Spectra. II. A, Am, Ap Spectroscopic Binaries (*Text in French*)

*Ginestet, N., Jaschek, M., Carquillat, J.M., Pédoussaut, A.* **107**, 215

UV Photometric Data on Standard A, F and Am Stars Observed by S2/68

*Van't Veer-Menneret, C., Faraggiana, R., Burkhart, C., Oberto, Y.* **107**, 416; **47**, 595

Observed and Computed UV Spectral Distribution of A and F Stars. Determination of  $T_e$  and  $\log g$

*Malagnini, M.L., Faraggiana, R., Morossi, C., Crivellari, L.* **114**, 170

### Absolute Energy Distribution

The Sun Among the Stars. VI. The Solar Analog HD 44594

*Hardorp, J., Tüg, H., Schmidt-Kaler, T.* **107**, 311

### Absolute Magnitudes

The Absolute Magnitudes of G 5-M 3 Stars near the Giant Branch

*Egret, D., Keenan, P.C., Heck, A.* **106**, 115

*u*by photometry of Visual Double Stars: Absolute Magnitudes of Intrinsically Bright Stars

*Olsen, E.H.* **110**, 179; **48**, 165

**Absorption**, see interstellar Absorption, Line Formation

### Abundances, interstellar

The Helium to Heavy Element Enrichment Ratio,  $\Delta Y/\Delta Z$

*Chiosi, C., Matteucci, F.* **105**, 140

NLTE Model Atmospheres for Early-type Stars of Various Chemical Compositions and Resulting Emission-line Spectra for Surrounding H II Regions

*Borsenberger, J., Stasińska, G.* **106**, 158

The State of Ionization in Dense Molecular Clouds

*Guélin, M., Langer, W.D., Wilson, R.W.* **107**, 107

Astronomical Study of the  $C_3N$  and  $C_4H$  Radicals: Hyperfine Interactions and Rho-type Doubling

*Guélin, M., Friberg, P., Mezaoui, A.* **109**, 23

Abundances in the Planetary Nebula NGC 6853

*Pottasch, S.R., Gilra, D.P., Wesseliuss, P.R.* **109**, 182

Further ( $^{12}C/^{13}C$ ) Ratios from Formaldehyde: A Variation with Distance from the Galactic Center

*Henkel, C., Wilson, T.L., Bieging, J.* **109**, 344

Are All Galactic Nuclear Regions Sodium Rich?

*Véron-Cetty, M.P., Véron, P., Tarenghi, M.* **113**, 46

$NH^+$  - A Candidate for Comets and Interstellar Space

*de Almeida, A.A., Singh, P.D.* **113**, 199

Soft X-ray Filter Spectroscopy of the Supernova Remnants Vela X and Puppis A

*Burkert, W., Zimmermann, H.U., Aschenbach, B., Bräuninger, H., Williamson, F.* **115**, 167

The Galactic Abundance Gradient from Supernova Remnant Observations

*Binet, L., Dopita, M.A., D'Odorico, S., Benvenuti, P.* **115**, 315

**Abundances, solar**, see also Solar System

Fast Neutron Capture on  $^{180}Hf$  and  $^{184}W$  and the Solar Hafnium and Tungsten Abundance

*Beer, H., Käppeler, F., Wisshak, K.* **105**, 270

Absolute Transition Probabilities in the Spectra of Eu II. III. Astrophysical Applications

*Biémont, E., Karner, C., Meyer, G., Träger, F., zu Putlitz, G.* **107**, 166

Radiative Lifetimes for Pd I and the Solar Abundance of Palladium

*Biémont, E., Grevesse, N., Kwiatkowski, M., Zimmermann, P.* **108**, 127

Infrared Bands of  $C_2$  in the Solar Photospheric Spectrum

*Brault, J.W., Delbouille, L., Grevesse, N., Roland, G., Sauval, A.J., Testerman, L.* **108**, 201

The Solar Structure and the Low / Five-minute Oscillation. I

*Gabriel, M., Scuflaire, R., Noels, A.* **110**, 50

The Influence of Temperature Inhomogeneities in the Solar Atmosphere on Abundance Determinations

*Hermesen, W.* **111**, 233

Analysis of Fe I Lines ( $0.00 \text{ eV} < \chi < 12.6 \text{ eV}$ ) in the Solar Spectrum Using Improved Damping Constants and Accurate Oscillator Strengths: Test of a Solar Model Atmosphere

*Simmons, G.J., Blackwell, D.E.* **112**, 209

New Lifetime Measurements for Nb I and Rh I and the Solar Photospheric Abundances of Nb and Rh

*Kwiatkowski, M., Zimmermann, P., Biémont, E., Grevesse, N.* **112**, 337

The Solar Structure and the Low / Five-minute Oscillation. II

*Scuflaire, R., Gabriel, M., Noels, A.* **113**, 219

Empirical NLTE Analyses of Solar Spectral Lines. III. Iron Lines Versus LTE Models of the Photosphere

*Rutten, R.J., Kostik, R.I.* **115**, 104

The Analysis of Fe XIV 5303 Coronal Emission-line Polarization Measurements

*Arnaud, J.* **116**, 248

**Abundances, stellar**, see also Isotopes, Metal Abundance, Stellar Atmospheres, and under the different Objects

The Helium to Heavy Element Enrichment Ratio,  $\Delta Y/\Delta Z$

*Chiosi, C., Matteucci, F.* **105**, 140

NLTE Model Atmospheres for Early-type Stars of Various Chemical Compositions and Resulting Emission-line Spectra for Surrounding H II Regions

*Borsenberger, J., Stasińska, G.* **106**, 158

LB 3459 - An O-type Subdwarf Eclipsing Binary System. Non-LTE Analysis of the Primary

*Kudritzki, R.P., Simon, K.P., Lynas-Gray, A.E., Kilkenny, D., Hill, P.W.* **106**, 254

- Mass Loss Rates in the Open Cluster IC 1805  
*Llorente de Andrés, F., Burki, G., Ruiz del Arbol, J.A.* **107**, 43
- On the Detection of Abundance Stratifications in Peculiar Stars Through the Curve of Growth Method  
*Alecian, G.* **107**, 61
- Lithium and Barium in RCrB and XX Cam  
*Hunger, K., Schönberner, D., Steenbock, W.* **107**, 93
- Absolute Transition Probabilities in the Spectra of Eu II. III. Astrophysical Applications  
*Biémont, E., Karner, C., Meyer, G., Träger, F., zu Putlitz, G.* **107**, 166
- Nitrogen Anomalies in O-type Stars: A New Spectroscopic Criterion  
*Bisiacchi, G.F., López, J.A., Firmani, C.* **107**, 252
- Classification Properties of the Vilnius-Geneva Photometric System. II. Stars with Peculiar Chemical Composition  
*North, P., Hauck, B., Straizys, V.* **108**, 373
- Spectral Analysis of the OB Subdwarf HD 149 382  
*Baschek, B., Kudritzki, R.P., Scholz, M., Simon, K.P.* **108**, 387
- Models of Stellar Evolution and Their Use in Calibrating Distances and Element Abundances of Stars  
*Gehren, T.* **109**, 187
- Open Clusters in Our Galaxy  
*Lynga, G.* **109**, 213
- uvby* Photometry of Visual Double Stars: A Comparison With Stellar Models and Isochrones  
*Olsen, E.H.* **110**, 215
- Spectroscopic Orbits for Two Very High Velocity Halo Stars: HD 111980 and HD 149414  
*Mayor, M., Turon, C.* **110**, 241
- A Search for Ap Stars in the Scorpio-Centaurus Association: Additional Evidence for a Slow Metal Enrichment  
*Borra, E.F., Joncas, G., Wizinowich, P.* **111**, 117
- Molecules in Red-giant Stars. I. Column Densities in Models for K and M Stars  
*Johnson, H.R., Sawal, A.J.* **111**, 210; **49**, 77
- The Influence of CN Abundances on the Evolution of Main Sequence of Low-mass Stars  
*Bazzano, A., Caputo, F., Sestili, M., Castellani, V.* **111**, 312
- A Search for Medium Z Elements in the Ultraviolet Spectrum of  $\kappa$  Cancri  
*Davidson, J.P., Bord, D.J.* **111**, 362
- The OB Subdwarf Feige 66, a Chemical-composition Twin to HD 149382  
*Baschek, B., Höflich, P., Scholz, M.* **112**, 76
- NGC 2440: Ionization Structure, Extinction, and Near Infrared Spectrum  
*Condal, A.R.* **112**, 124
- Discovery of Ca II Absorption at 1840 Å in the IUE Spectra of Two Helium-rich White Dwarfs  
*Koester, D., Vauclair, G., Weidemann, V., Zeidler-K.T., E.M.* **113**, L13
- A Model Atmosphere Analysis of Procyon ( $\alpha$ CMi, F5 IV-V)  
*Kato, K., Sadakane, K.* **113**, 135
- Fine Analysis of the Intermediate Helium-star CPD-46°3093  
*Groote, D., Kaufmann, J.P., Lange, A.* **114**, 420; **50**, 77
- Evolution of Low Mass Zero Metal Giants up to the Helium Flash  
*D'Antona, F.* **115**, L1
- Carbon, Nitrogen and Oxygen Abundances in G8-K3 Giant Stars  
*Kjærgaard, P., Gustafsson, B., Walker, G.A.H., Hultqvist, L.* **115**, 145
- Abundances in Metal-poor Stars. I. The Globular Clusters NGC 2808, NGC 3201, NGC 6397, and M22  
*Gratton, R.G.* **115**, 171
- The Mid-ultraviolet Spectrum of  $\epsilon$  Aurigae  
*Castelli, F., Hoekstra, R., Kondo, Y.* **115**, 217; **50**, 233
- Abundances in Metal-poor Stars. II. The Anomalous Globular Cluster  $\omega$  Centauri  
*Gratton, R.G.* **115**, 336
- Abundance of Lithium in Unevolved Halo Stars and Old Disk Stars: Interpretation and Consequences  
*Spite, F., Spite, M.* **115**, 357
- Atmospheric Parameters and Carbon Abundance of White Dwarfs of Spectral Types C<sub>2</sub> and DC  
*Koester, D., Weidemann, V., Zeidler-K.T., E.-M.* **116**, 147
- Accretion**, see also Stellar Wind
- Vertical Structure of Accretion Disks  
*Meyer, F., Meyer-Hofmeister, E.* **106**, 34
- Spherical Accretion with  $e^+e^-$ -Pair Production  
*Brinkmann, W.P.* **107**, 48
- Non-thermal Emission from Relativistic Accretion Disks: A Simple Model for Axisymmetric Inhomogeneous Sources  
*Pineault, S.* **109**, 294
- On the Time Scales of the Pair Production Processes in Astrophysics  
*Zdziarski, A.A.* **110**, L7
- GX339-4: Cyclotron Radiation from an Accretion Flow  
*Fabian, A.C., Guilbert, P.W., Motch, C., Ricketts, M., Ilovaisky, S.A., Chevalier, C.* **111**, L9
- Hydrogen-Helium Flashes on Accreting Neutron Stars as a Possible Origin of Gamma-ray Bursts  
*Hameury, J.M., Bonazzola, S., Heyvaerts, J., Ventura, J.* **111**, 242
- VBLUW Photometry of RZ Oph (BD +7° 3832): Eclipse of the Accretion Disk  
*van Paradijs, J., van der Woerd, H., van der Bij, M., Lee Van Suu, A.* **111**, 372
- Meridional Circulation in Optically Thick Accretion Disks  
*Cabot W., Savedoff, M.P.* **112**, L1
- Color Variability and Optical Light Curve of 2S0921-630  
*Chevalier, C., Ilovaisky, S.A.* **112**, 68
- On the Origin of Low Mass Cataclysmic Binaries  
*Livio, M.* **112**, 190
- Comments on Radial White Dwarf Accretion  
*Kuijpers, J., Pringle, J.E.* **114**, L4
- On the Compatibility of Thermal and Hydrostatic Equilibrium in Thin Radiative Accretion Disks  
*Kippenhahn, R., Thomas, H.-C.* **114**, 77
- Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. I. Method  
*Hensler, G.* **114**, 309
- Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. II. Models  
*Hensler, G.* **114**, 319
- The UV Spectrum of the Old Nova HR Del at Different Orbital Phases  
*Friedjung, M., Andriolat, Y., Puget, P.* **114**, 351
- Stationary Spherical Accretion into Black Holes. The Transition from the Optically Thin to the Optically Thick Regime  
*Soffel, M.H.* **116**, 111
- Fast Coherent Oscillations in Variable X-ray Sources and Bursters  
*Livio, M., Bath, G.T.* **116**, 286



**Acoustic Waves**, see also Solar Chromosphere, Stellar Chromospheres

**Active Galaxies**, see Galaxies, Markarian Galaxies, Quasi-stellar Objects, Seyfert Galaxies, X-ray Radiation

An Assessment of the Detectability of X-ray Emission from Winds in Active Galactic Nuclei and Quasars

*Beltrametti, M., Drew, J.* **106**, 153

Profiles of [O III] Lines in QSOs

*Miley, G.K., Heckman, T.M.* **106**, 163

Mid-infrared Observations of Seyfert 1 and Narrow-line X-ray Galaxies

*Glass, I.S., Moorwood, A.F.M., Eichendorf, W.* **107**, 276

New High Resolution Radio Observations of NGC 4258. III. VLA and WSRT Observations of the Anomalous Arms

*van Albada, G.D., van der Hulst, J.M.* **115**, 263

### Alfvén Waves

Alfvénic Fluctuations as Asymptotic States of MHD Turbulence

*Grappin, R., Frisch, U., Leorat, J., Pouquet, A.* **105**, 6

Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. V. The Theory of Magneto-Acoustic-Gravity Oscillations

*Leroy, B., Schwartz, S.J.* **112**, 84

Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. VI. Application of Magneto-Acoustic-Gravity Mode Theory to the Solar Atmosphere

*Schwartz, S.J., Leroy, B.* **112**, 93

Non-linear Theory of Cosmic Ray Shocks Including Self-generated Alfvén Waves

*McKenzie, J.F., Völk, H.J.* **116**, 191

**Algol Systems**, see Close Binaries

Revised Photometric Elements of the Eclipsing Binary EE Aquarii

*Russo, G., Sollazzo, C.* **107**, 197

**Am Stars**, see Metallic Line Stars

A Search for Medium Z Elements in the Ultraviolet Spectrum of  $\kappa$  Cancri

*Davidson, J.P., Bord, D.J.* **111**, 362

**Andromeda Nebula**, see M 31, Galaxies (individual)

**Ap Stars**, see Peculiar A Stars

**Apex of Solar Motion**, see Solar Motion

### Associations

The Graphite Rich Cepheus OB 3 Association

*Barsella, B., Panagia, N., Perinotto, M.* **111**, 130

The Gas Dynamics Around OB Associations. II. Dependence on the Initial Ambient Density

*Tenorio-Tagle, G., Beltrametti, M., Bodenheimer, P., Yorke, H.W.* **112**, 104

### Asteroids

Quadruple Extrema in the Complex Lightcurve of the Asteroid 37 Fides?

*Schober, H.J.* **105**, 419

Positions d'astéroïdes obtenues au GPO de 40 cm de l'ESO, La Silla, décembre 1979

*Debehogne, H., Machado, L., Netto, E., Caldeira, J., Vieira, G.* **106**, 180; **46**, 371

The Asteroids 36 Atalante and 48 Doris: Rotation, *UBV*-Photometry and Lightcurves

*Schober, H.J., Schroll, A.* **107**, 402

Positions of Asteroids Obtained During 1978

*Zappalà, V., Lagerkvist, C.I., de Sanctis, G.* **107**, 412; **47**, 447

Positions of the Minor Planets 102 Miriam, 1024 Hale and 1687 Glarona Obtained in May and June 1980 with the GPO, ESO, La Silla

*Debehogne, H., Machado, L.E., Caldeira, J., Vieira, G., Netto, E.R.* **107**, 413; **47**, 463

Studies of Small Asteroids. II. Positions of Asteroids Obtained During 1980 with the ESO Schmidt Telescope

*Lagerkvist, C.I.* **107**, 414; **47**, 513

Positions of Asteroids Obtained During 1976-1979 with the Uppsala Astrograph and with the Kvistaberg Schmidt Telescope

*Pettersson, B., Hahn, G., Lagerkvist, C.I.* **107**, 414; **47**, 533

Positions of Minor Planets (*Text in French*)

*Soulié, G.* **107**, 417; **47**, 611

Photoelectric Photometry of Three Dark Asteroids

*Debehogne, H., De Sanctis, G., Zappalà, V.* **108**, 197

A Revised Rotation Period for the Asteroid 164 Eva

*Schober, H.J.* **108**, 415; **48**, 57

Motion of the Jovian Commensurability Resonances and the Character of the Celestial Mechanics in the Asteroid Zone: Implications for Kinematics and Structure

*Torbett, M., Smoluchowski, R.* **110**, 43

Inertial Frame Determination Using Minor Planets. A Simulation of Hipparcos-observations

*Söderhjelm, S., Lindegren, L.* **110**, 156

Positions of Asteroids (1981)

*Debehogne, H., De Sanctis, G., Zappalà, V.* **110**, 182; **48**, 449

On the Reality of Minor Planet (330) Adalberta

*West, R.M., Madsen, C., Schmadel, L.D.* **110**, 198

A Systematic Exploration of Three-dimensional Asteroidal Motion at the 2/1 Resonance

*Froeschlé, C., Scholl, H.* **111**, 346

Photoelectric Observations of 44 Nysa During 1981 Opposition

*Piironen, J.O.* **112**, 172

Catalogue of Minor Planet Identities. I. Identities with Planets (I)-(2297)

*Schmadel, L.D.* **112**, 395; **49**, 691

Minor Planets Discoveries at the GPO, ESO-La Silla. Dependences of Stars for Catalogue Improvement and Future Perturbation Studies

*Debehogne, H.* **112**, 396; **49**, 775

Three Characteristic Parameters of Orbits of Hilda-type Asteroids

*Schubart, J.* **114**, 200

Physical Studies of Asteroids. VII: The Unusual Rotation of M and CMEU Asteroids

*Zappalà, V., Debehogne, H., Lagerkvist, C.-I., Rickman, H.* **114**, 420; **50**, 23

Positions of Asteroids Obtained During August and September 1981 with the GPO Telescope at ESO, Chile

*Debehogne, H., Hahn, G., Lagerkvist, C.-I.* **114**, 420; **50**, 73

Positions of Selected Minor Planets (1980-1981)

*De Sanctis, G., Ferreri, W., Zappalà, V.* **114**, 421; **50**, 421

Physical Studies of Asteroids. VIII. Photoelectric Photometry of the Asteroids 42, 48, 93, 105, 145, and 245

*Debehogne, H., Lagerkvist, C.-I., Zappalà, V.* **115**, 218; **50**, 277

The Six-day Rotation Period of 1689 Floris-Jan: A New Record Among Slowly Rotating Asteroids

*Schober, H.J., Surdej, J., Harris, A.W., Young, J.W.* **115**, 257



## On Asteroid Classifications in Families

Carusi, A., Valsecchi, G.B. **115**, 327

## Astrolabe Measurements, see Astrometry, Latitude Observations, Time Observations

## Astrometry, see also Latitude Observations, Time Observations

## The Short Term Stability of the Brorfelde Transit Circle

Fabritius, C. **105**, 413

## Positions d'astéroïdes obtenues au GPO de 40 cm de l'ESO, La Silla, décembre 1979

Debehogne, H., Machado, L., Netto, E., Caldeira, J., Vieira, G. **106**, 180; **46**, 371

## The Orbits of the Visual Double Stars ADS 10621 and ADS 15650

Morel, P.-J. **106**, 378; **47**, 217

## Photometric and Astrometric Observations of Close Visual Binaries

Rakos, K.D., Albrecht, R., Jenkner, H., Kreidl, T., Michalke, R., Oberlacher, D., Santos, E., Schermann, A., Schnell, A., Weiss, W. **106**, 379; **47**, 221

## Determination of the Equinox and Equator of the FK5

Fricke, W. **107**, L13

## New Constants for the Sampson-Lieske Theory of the Galilean Satellites of Jupiter

Arlot, J.-E. **107**, 305

## New Photographic Method for the Measurement of Visual Binaries

Scardia, M., Pannunzio, R. **107**, 362

## Positions of Asteroids Obtained During 1978

Zappalà, V., Lagerkvist, C.I., de Sanctis, G. **107**, 412; **47**, 447

## Positions of the Minor Planets 102 Miriam, 1024 Hale and 1687 Glaronia Obtained in May and June 1980 with the GPO, ESO, La Silla

Debehogne, H., Machado, L.E., Caldeira, J., Vieira, G., Netto, E.R. **107**, 413; **47**, 463

Accurate Positions and Standard  $D_{25}$  Diameters for Galaxies in the Central Part of the Coma Cluster (Text in French)

Paturel, G., Perie, M., Rousseau, M. **107**, 413; **47**, 467

## Observations of Uranus Made with the Danjon Astrolabe of Santiago, Chile, During 1979

Noël, F., Barros, S. **107**, 413; **47**, 481

## Studies of Small Asteroids. II. Positions of Asteroids Obtained During 1980 with the ESO Schmidt Telescope

Lagerkvist, C.I. **107**, 414; **47**, 513

## Positions of Asteroids Obtained During 1976-1979 with the Uppsala Astrograph and with the Kvistaberg Schmidt Telescope

Pettersson, B., Hahn, G., Lagerkvist, C.I. **107**, 414; **47**, 533

## Orbits of 16 Visual Binaries

Heintz, W.D. **107**, 415; **47**, 569

## Positions of Minor Planets (Text in French)

Soulié, G. **107**, 417; **47**, 611

## Comments on Determination of Division Corrections

Branham, L., Jr. **108**, L5

## VLBI Observations of 12 Compact Radio Sources North of Declination 70°

Eckart, A., Hill, P., Johnston, K.J., Pauliny-Toth, I.I.K., Spencer, J.H., Witzel, A. **108**, 157

## Accurate Optical Positions of Isolated Galaxies

Brosch, N. **108**, 415; **48**, 63

## On the Discrepancy Between the Optical and Radio Position of T Tauri

de Vegt, C. **109**, L15

## Comparison of Precise Optical and Radio Positions for Cyg OB2 Members and P Cyg

de Vegt, C. **109**, 282

## Inertial Frame Determination Using Minor Planets. A Simulation of Hipparcos-observations

Söderhjelm, S., Lindgren, L. **110**, 156

## Observations of the Sun at the CERGA Astrolabe in 1980 (Text in French)

Laclare, F., Glentzlin, M., Leister, N.V., Chollet, F. **110**, 181; **48**, 371

## New Double Stars (17th Series) Discovered at Nice (Text in French)

Couteau, P. **110**, 182; **48**, 443

## Positions of Asteroids (1981)

Debehogne, H., De Sanctis, G., Zappalà, V. **110**, 182; **48**, 449

## Danjon Astrolabe Observations at Rio de Janeiro: Time and Latitude

Andrei, A.H., d'Ávila, V.A., Penna, J.L., Queiroz, M. **110**, 183; **48**, 485

## On the Reality of Minor Planet (330) Adalberta

West, R.M., Madsen, C., Schmadel, L.D. **110**, 198

## Interferometric Measurements of Stellar Positions in the Infrared

Sutton, E.C., Subramanian, S., Townes, C.H. **110**, 324

## Meridian Observations Made in Brorfelde (Copenhagen University Observatory) 1969-1975. Positions of 6427 Stars Brighter than 11.00 vis.mag.

Helmer, L., Fogh Olsen, H.J. **111**, 209; **49**, 13

## Observations of Mars with the Astrolabe of the CERGA Observatory (February 1980 - May 1980) (Text in French)

Pham-Van, J., Dudognon, G., Granès, P., Mignard, F., Vigouroux, G. **111**, 211; **49**, 105

## Observations of Jupiter with the Astrolabe of the CERGA Observatory (January 1978 - May 1979) (Text in French)

Vigouroux, G., Delmas, C., Guallino, G., Mignard, F., Pham-Van, J. **111**, 211; **49**, 107

## A New Method of Determination of the Pole Motion in a Uniform System

Takagi, S. **112**, 11

## Observation of 2 Mutual Events Involving the Satellites of Saturn in April 1980

Dourneau, G. **112**, 73

## Time and Latitude Results of Observations Made at Merate Observatory with the Astrolabe for the Year 1981

Buffoni, L., Carta, F., Chlístovsky, F., Manara, A., Mazzoleni, F. **112**, 179; **49**, 509

## Orbital Elements of Nereid from New Observations

Veillet, C. **112**, 277

## Minor Planets Discoveries at the GPO, ESO-La Silla. Dependencies of Stars for Catalogue Improvement and Future Perturbation Studies

Debehogne, H. **112**, 396; **49**, 775

## Precise Optical Positions of Radio Sources in the FK 4-system. II. Results from 28 Sources on the Northern Hemisphere and a Preliminary Comparison of the Optical-Radio Reference Frame

de Vegt, C., Gehlich, U.K. **113**, 213

## Accurate Optical Positions of M 82 Knots

Bettoni, D., Galletta, G. **113**, 344

## Experiences with the U.S. Naval Observatory Glass Circles

Rafferty, T.J., Klock, B.L. **114**, 95

## Improved Orbital Elements for Periodic Comet Schorr (1918 III)

de Vegt, C., Kohoutek, L., Marsden, B.G. **114**, 147

## ADS 3230: Two Possible Solutions in the Computation of the Orbital Elements (Text in French)

Scardia, M. **114**, 419; **50**, 19

Effect of Different Sources of Variation of Latitude Data on Meridian Circle Catalogues

*Rafferty, T.J.* **114**, 420; **50**, 27

Measurements of Double Stars Made in Nice. Orbits of Three Binary Stars (Text in French)

*Couteau, P.* **114**, 420; **50**, 49

Positions of Asteroids Obtained During August and September 1981 with the GPO Telescope at ESO, Chile

*Debehogne, H., Hahn, G., Lagerkvist, C.-I.* **114**, 420; **50**, 73

Measures of Southern Double Stars in 1981

*Wilson, R.H., Jr.* **114**, 421; **50**, 115

Positions of Selected Minor Planets (1980–1981)

*De Sanctis, G., Ferreri, W., Zappalà, V.* **114**, 421; **50**, 421

Conversion of Positions and Proper Motions from B 1950.0 to the IAU System at J 2000.0

*Standish, E.M., Jr.* **115**, 20

A Pool of Faint Stars Applied to Star Catalogue Formation

*Hering, R., Walter, H.G.* **115**, 197

The Fourth Meridian Catalogue of Besançon Observatory (Text in French)

*Crézé, M., Mazodier, B., Clairemidi, J., Colin, J., Considère, S., Hilaire, G., Oblak, E., Parisot, J.P., Puel, F., Andrez, R., Athanase, M., Chabod, D., Godet, L., Jeandenans, P., Mougin, B., Vincent, A., Vincent, M.* **115**, 216; **50**, 147

An Accurate Derivation of the Division Corrections in a Photoelectric Meridian Circle

*Miyamoto, M., Kühne, C.* **115**, 216; **50**, 173

Results of Observations Made in Paris with the Astrolabe (Text in French)

*Chollet, F., Débarbat, S., Hascœt, J.C., Lam, S.K., Texier, P., Tomas, M.* **115**, 217; **50**, 195

The Connection of a Catalogue of Stars with an Extragalactic Reference Frame

*Froeschlé, M., Kovalevsky, J.* **116**, 89

Seeing-independent Definitions of the Solar Limb Position

*Brown, T.M.* **116**, 260

## Astronomical Constants

The New Definition of Universal Time

*Aoki, S., Guinot, B., Kaplan, G.H., Kinoshita, H., McCarthy, D.D., Seidelmann, P.K.* **105**, 359

On the Invariable Plane of the Solar System

*Burkhardt, G.* **106**, 133

Determination of the Equinox and Equator of the FK5

*Fricke, W.* **107**, L13

Inertial Frame Determination Using Minor Planets. A Simulation of Hipparcos-observations

*Söderhjelm, S., Lindegren, L.* **110**, 156

Orientation of the JPL Ephemerides, DE 200/LE 200, to the Dynamical Equinox of J 2000

*Standish, E.M., Jr.* **114**, 297

## Atlases

The Spectrum of FG Sge in 1979–1980. I.  $\lambda\lambda$  3700–5000 Å

*Acker, A., Jaschek, M., Gleizes, F.* **110**, 181; **48**, 363

An Atlas of Southern and Equatorial Dwarf Novae

*Vogt, N., Bateson, F.M.* **110**, 182; **48**, 383

The ESO Quick Blue Survey and ESO (B) Atlas

*West, R.M., Schuster, H.-E.* **112**, 180; **49**, 577

**Atmospheres**, see Earth Atmosphere, Planetary Atmospheres, Solar Atmospheres, Stellar Atmospheres

**Atomic and Molecular Data**, see also Collisions, Energy Levels, Line Broadening, Transition Probabilities

Fast Neutron Capture on  $^{180}\text{Hf}$  and  $^{184}\text{W}$  and the Solar Hafnium and Tungsten Abundance

*Beer, H., Käppeler, F., Wisshak, K.* **105**, 270

Charge Transfer Ionization of  $\text{Si}^+$  by  $\text{H}^+$  at Thermal Energies

*Gargaud, M., McCarroll, R., Valiron, P.* **106**, 197

Hyperfine Structure Measurement in Sc II

*Arnesen, A., Hallin, R., Nordling, C., Staaf, Ö., Ward, L., Jelénković, B., Kisielinski, M., Lundin, L., Mannervik, S.* **106**, 327

Absolute Transition Probabilities in the Spectra of Eu I and Eu II. II. Line Intensity Measurements

*Karner, C., Meyer, G., Träger, F., zu Putlitz, G.* **107**, 161

The Solar Spectrum of O IV, Including Photoexcitation by Fe IX 171.07 Å

*Kastner, S.O.* **108**, 361

Tentative Identification of  $\text{CS}^+$  in Comets

*Singh, P.D.* **108**, 369

Astronomical Study of the  $\text{C}_3\text{N}$  and  $\text{C}_4\text{H}$  Radicals: Hyperfine Interactions and Rho-type Doubling

*Guélin, M., Friberg, P., Mezaoui, A.* **109**, 23

The Collision Strength for the N III  $\lambda$  1750 Transition

*Nussbaumer, H., Storey, P.J.* **109**, 271

[Ni II] Emission Under Nebular Conditions

*Nussbaumer, H., Storey, P.J.* **110**, 295

The Theoretical KLL + KLM Auger Spectrum of the Free Na Atom

*Petrini, D.* **111**, 279

Analysis of Fe I Lines ( $0.00 \text{ eV} < \chi < 12.6 \text{ eV}$ ) in the Solar Spectrum Using Improved Damping Constants and Accurate Oscillator Strengths: Test of a Solar Model Atmosphere

*Simmons, G.J., Blackwell, D.E.* **112**, 209

On the Variation of Stark Line Widths Within a Supermultiplet

*Dimitrijević, M.S.* **112**, 251

New Lifetime Measurements for Nb I and Rh I and the Solar Photospheric Abundances of Nb and Rh

*Kwiatkowski, M., Zimmermann, P., Biémont, E., Grevesse, N.* **112**, 337

Forbidden Emission Lines of Fe VII

*Nussbaumer, H., Storey, P.J.* **113**, 21

$\text{NH}^+$  – A Candidate for Comets and Interstellar Space

*de Almeida, A.A., Singh, P.D.* **113**, 199

Electron Densities from the O IV  $\lambda$  1401 Multiplet

*Nussbaumer, H., Storey, P.J.* **115**, 205

Coronal Line Intensities for Ions with Fine-structured Ground States: Si x

*Saha, H.P., Treffitz, E.* **116**, 224

Experimental Stark Broadening Data of Si II and Si III Lines

*Kusch, H.J., Schröder, K.* **116**, 255

**B Stars**, see also Early Type Stars

Geneva [U, B, V] Intrinsic Colours of B-type Stars

*Cramer, N.* **112**, 330

Equivalent Widths of Spectral Lines in B-type Stars (Text in French)

*Didelon, P.* **115**, 217; **50**, 199

Shell and Photosphere of  $\sigma$  Ori E: New Observations and Improved Model

*Groote, D., Hunger, K.* **116**, 64

**Background Radiation**, see also Galactic Structure, Interstellar Radiation Field

The Correlation Between Diffuse Far Ultraviolet Background and Line of Sight Hydrogen Column: Dust Scattering and  $H_2$  Fluorescence

*Jakobsen, P.* **106**, 375

Double Compton Process and the Spectrum of the Microwave Background

*Danese, L., De Zotti, G.* **107**, 39

Contribution of the Warm Intercloud Medium to the Diffuse Ultraviolet Background

*Deharveng, J.M., Joubert, M., Barge, P.* **109**, 179

Ultraviolet Spectrum of the Sky Background at Different Galactic Latitudes

*Zvereva, A.M., Severny, A.B., Granitzky, L.V., Hua, C.T., Cruwellier, P., Courtès, G.* **116**, 312

**Barr Effect**, see Spectroscopic Binaries

**Barred Spiral Galaxies**, see also Galaxies, Spiral Galaxies

**Be Stars**, see also Emission Line Stars

An Usually Short Stable Period of Absorption Line Asymmetries and V/R Variations in the Spectrum of the Be Star 28 CMa

*Baade, D.* **105**, 65

On the Spectrum of the Herbig Be Star HD 200775

*Baschek, B., Beltrametti, M., Köppen, J., Traving, G.* **105**, 300

Erratum: Infrared Lines of O I and Ca II in Be Stars with Paschen Emission Lines

*Briot, D.* **105**, 422

Erratum: Paschen Lines in Be Stars. II. Study of Paschen Emission Lines

*Briot, D.* **105**, 422

Infrared Photometry of Southern Be Stars

*Dachs, J., Wamsteker, W.* **107**, 240

UV and Visible Photometry of the Brightest Pleiades Stars

*Golay, M., Mauron, N.* **107**, 415; **47**, 547

Analysis of the IUE and Optical Spectra of the Peculiar Be Star HD 87643

*de Freitas Pacheco, J.A., Gilra, D.P., Pottasch, S.R.* **108**, 111

Study of  $H_\alpha$  Profile in 72 Be Stars

*Andrillat, Y., Fehrenbach, Ch.* **108**, 416; **48**, 93

Stellar Content of Young Open Clusters. II. Be Stars

*Mermilliod, J.-C.* **109**, 48

Does 28 CMa Have a Photometric Period Differing from Its Spectroscopic Period?

*Baade, D.* **110**, L15

On the Balmer Emission Lines of the Herbig Be Star HD 200775

*Köppen, J., Finkenzeller, U., Mundt, R., Beltrametti, M.* **112**, 174

Properties and Nature of Be and Shell Stars. 7B.88 Her – An Important Clue to Understanding the Be Phenomenon?

*Doazan, V., Harmanec, P., Koubsky, P., Krpata, J., Zdarsky, F.* **115**, 138

**Beta Cephei Stars**

An Usually Short Stable Period of Absorption Line Asymmetries and V/R Variations in the Spectrum of the Be Star 28 CMa

*Baade, D.* **105**, 65

The Pulsation of the Outer Layers of the Beta Cephei-type Variable BW Vul

*Burger, M., de Jager, C., van den Oord, G.H.J., Sato, N.* **107**, 320

Profile Variations of the Si III (4452 and 4568) Lines and Mg II (4481) Doublet in  $\gamma$  Peg

*Le Contel, J.-M., Morel, P.-J.* **107**, 406

The Pulsation of the Outer Layers of the Beta Cephei Star  $\sigma$  Sco

*Burger, M., de Jager, C., van den Oord, G.H.J.* **109**, 289

Frequency Analyses of Light and Radial Velocity Observations of  $\alpha$  Lup

*Lampens, P., Goossens, M.* **115**, 413

**Beta Lyrae Stars**, see Eclipsing Binaries

**Binary Stars**, see also Cataclysmic Variables, Close Binaries, Double Stars, Eclipsing Binaries, Spectroscopic Binaries, Symbiotic Stars, W Ursae Majoris Stars, X-ray Binaries

On the Evolutionary Scenario of Massive Close Binaries with Primary Masses Between 20  $M_\odot$  and 160  $M_\odot$

*Vanbeveren, D.* **105**, 260

Some Constraints on the Evolutionary History of the Binary Pulsar PSR 1913+16

*Srinivasan, G., van den Heuvel, E.P.J.* **108**, 143

The Variable, Single-line WN8 Star HD 86161: Another Wolf-Rayet Star with a Low-mass Companion

*Moffat, A.F.J., Niemela, V.S.* **108**, 326

Detached  $\rightarrow$  Contact Scenario for the Origin of WUMa Stars

*Vilhu, O.* **109**, 17

New Double Stars (17th Series) Discovered at Nice (Text in French)

*Couteau, P.* **110**, 182; **48**, 443

Dissipative Evolution of Collisionless Stellar Systems. I. Cooling and Heating of a Stellar System by Binary Stars

*Ozernoy, L.M., Dokuchaev, V.I.* **111**, 1

Dissipative Evolution of Collisionless Stellar Systems. II. Influence of Binaries on the Evolution of Globular Clusters and Galactic Nuclei

*Dokuchaev, V.I., Ozernoy, L.M.* **111**, 16

The Detection of Compact Companions in OB-runaway Stars

*Sybesma, C.H.B., de Loore, C.* **111**, 229

Contact Binaries: Angular Momentum Loss In and Out of Contact

*Rucinski, S.M.* **112**, 273

Shock Fronts in Wide Binary Systems

*Huang, R.Q., Weigert, A.* **112**, 281

Spectral Variations of Two Cool Ap Stars: HD 25354 and HD 152107

*Floquet, M.* **112**, 299

The Fastest Runaway Wolf-Rayet Star of Population I in the Galaxy, 209 BAC: Evidence for a Low Mass Companion

*Moffat, A.F.J., Lamontagne, R., Seggewiss, W.* **114**, 135

Contribution to the Study of Composite Spectra. III. Spectrum Binaries: Intermediate Class Between Visual and Spectroscopic Binaries? (Text in French)

*Carquillat, J.M., Nadal, R., Ginestet, N., Pedoussaut, A.* **115**, 23

On the Difference Between the Initial Mass Function of Single Stars and of Primaries of Binaries

*Vanbeveren, D.* **115**, 65

**BL Lacertae Objects**

The Properties of AP Librae from *UBV* Photoelectric Photometry

*Westerlund, B.E., Wlérick, G., Garnier, R.* **105**, 284

The Photometric History of the BL Lacertae Object OJ 287

*Gaida, G., Röser, H.-J.* **105**, 362

# VLBI Observations of 12 Compact Radio Sources North of Declination 70°

*Eckart, A., Hill, P., Johnston, K.J., Pauliny-Toth, I.I.K., Spencer, J.H., Witzel, A.* **108**, 157

# A Rapid Outburst of BL Lac at 2.72 GHz

*Reich, W., Steffen, P.* **113**, 348

## Black Holes

### Spherical Accretion with $e^+e^-$ -Pair Production

*Brinkmann, W.P.* **107**, 48

### High Energy $\gamma$ -rays from a Relativistic Plasma

*Giovannelli, F., Karakula, S., Tkaczyk, W.* **107**, 376

### Optical Structure of the Core of the Dynamically Advanced Globular Cluster NGC 6397

*Aurière, M.* **109**, 301

### On the Time Scales of the Pair Production Processes in Astrophysics

*Zdziarski, A.A.* **110**, L7

### The Distribution of Stars Around a Black Hole: Numerical Solution of the Kinetic Equation with Collisions

*Bisnovatyi-Kogan, G.S., Churayev, R.S., Kolosov, B.I.* **113**, 179

### Do Black Holes Exist at the Centres of Globular Clusters?

*Gurzadyan, V.G.* **114**, 71

### Stationary Spherical Accretion into Black Holes. The Transition from the Optically Thin to the Optically Thick Regime

*Soffel, M.H.* **116**, 111

## Blue Stragglers

### Stellar Content of Young Open Clusters. I. Blue Stragglers

*Mermillod, J.-C.* **109**, 37

## Bremsstrahlung, see Plasmaphysics

## Bursts

### Solar Type I Noise Storms and Newly Emerging Magnetic Flux

*Spicer, D.S., Benz, A.O., Huba, J.D.* **105**, 221

### Infrared Scans of Gamma Ray Burst Source Regions

*Apparao, K.M.V., Allen, D.A.* **107**, L5

### Some Remarks on the Spectra of X-ray Bursts

*van Paradijs, J.* **107**, 51

### Search for Harmonic Emission in Solar Type I Radio Bursts

*Jaeggi, M., Benz, A.O.* **107**, 88

### Evidence of Primary and Secondary Bursts in Solar Type III Emission

*Benz, A.O., Treumann, R., Vilmer, N., Mangeney, A., Pick, M., Raoult, A.* **108**, 161

### Radio Imaging of Solar Flares Using the Very Large Array: New Insights into Flare Process

*Kundu, M.R., Schmahl, E.J., Velusamy, T., Vlahos, L.* **108**, 188

### The Log N-log S Curve of Gamma-ray Bursts Detected by the SIGNE Experiments

*Barat, C., Chambon, G., Hurley, K., Niel, M., Vedrenne, G.* **109**, L9

### Fine Structure near the Starting Frequency of Solar Type III Radio Bursts

*Benz, A.O., Zlobec, P., Jaeggi, M.* **109**, 305

### "Least Square Fitting" and "CLEAN": a Combination for Analysis of One-dimensional Synthesis

*Palagi, F.* **111**, 211; **49**, 101

### Hydrogen-Helium Flashes on Accreting Neutron Stars as a Possible Origin of Gamma-ray Bursts

*Hameury, J.M., Bonazzola, S., Heyvaerts, J., Ventura, J.* **111**, 242

### An Association Between Coronal Structures and Type III Burst Sources

*Trottet, G., Pick, M., House, L., Illing, R., Sawyer, C., Wagner, W.* **111**, 306

### The Importance of Plasma Effects on Electron-cyclotron Maser-emission from Flaring Loops

*Sharma, R.R., Vlahos, L., Papadopoulos, K.* **112**, 377

### Visible Light Observations of a Dense Plasmoid Associated with a Moving Type IV Solar Radio Burst

*Stewart, R.T., Dulk, G.A., Sheridan, K.V., House, L.L., Wagner, W.J., Sawyer, C., Illing, R., Wagner, W.* **116**, 217

## BY Draconis Stars

### Effect of Spots on a Star's Radius and Luminosity

*Spruit, H.C.* **108**, 348

### The Flow of Heat near a Starspot

*Spruit, H.C.* **108**, 356

### Ca II Emission, see Emission Lines, Emission Line Stars, Solar Prominences, Spectrum Variables, Stellar Chromospheres, Wilson-Bappu-Effect

### Magnetic Structure in Cool Stars. VI. Ca II H and K Fluxes from Evolved Stars

*Middelkoop, F.* **113**, 1

## Carbon Stars

### A Search for C<sub>2</sub> Features in the Hydrogen-poor Carbon Star HD 182040

*Wallerstein, G.* **105**, 219

### A Carbon Star in the Globular Cluster Lindsay 102

*Danks, A.C.* **106**, 4

### Molecular Abundances in IRC + 10216

*Lafont, S., Lucas, R., Omont, A.* **106**, 201

### High Sensitivity Molecular Line Observations of IRC + 10216

*Olofsson, H., Johansson, L.E.B., Hjalmarson, Å., Nguyen-Quang-Rieu* **107**, 128

### On the Structure of the Outer Layers of Cool Carbon Stars

*Querci, F., Querci, M., Wing, R.F., Cassatella, A., Heck, A.* **111**, 120

## Cataclysmic Variables, see also Dwarf Novae

### Vertical Structure of Accretion Disks

*Meyer, F., Meyer-Hofmeister, E.* **106**, 34

### A Photometric and Polarimetric Investigation of the Old Nova RR Pictoris

*Haefner, R., Metz, K.* **109**, 171

### New Evidence of Strong UV Radiation in TT Ari

*Wargau, W., Drechsel, H., Rahe, J., Vogt, N.* **110**, 281

### On the Origin of Low Mass Cataclysmic Binaries

*Livio, M.* **112**, 190

### First Ultraviolet Observations of Two New Cataclysmic Variables 1 E0643-1648 and 4 U1849-31

*Bonnet-Bidaud, J.M., Mouchet, M., Motch, C.* **112**, 355

### IUE Observations of Dwarf Novae During Active Phases

*Klare, G., Krautter, J., Wolf, B., Stahl, O., Vogt, N., Wargau, W., Rahe, J.* **113**, 76

### Evolution of Low Mass Stars Through Mass Loss: Transition from the Main Sequence to the Degenerate Phase

*D'Antona, F., Mazzitelli, I.* **113**, 303



PS 74: The Discovery of a New SU UMa Type Dwarf Nova with High Orbital Inclination

Barwig, H., Hunger, K., Kudritzki, R.P., Vogt, N. **114**, L11

## Catalogues

Compact and Extended Structure in B2 Radio Sources of Intermediate Strength

Padrielli, L., Kapahi, V.K., Katgert-Merkelijn, J.K. **106**, 181; **46**, 473

H I Line Studies of Galaxies: I-General Catalogue of 21-cm Line Data

Bottinelli, L., Gougouenheim, L., Paturol, G. **106**, 182; **47**, 171

Picture Gallery: a Structured Presentation of OAO-2 Photometric Data Supported by OAO-2 Spectrophotometric Data and *UBV*, *ANS* and *TD1* Observations

Koornneef, J., Meade, M.R., Wesselius, P.R., Code, A.D., van Duinen, R.J. **106**, 381; **47**, 341

Catalogue of Measurements in the DDO Photoelectric Photometric System (Magnetic Tape)

Meylan, G. **107**, 414; **47**, 483

A Complete Sample of Virgo Cluster Galaxies

Kraan-Korteweg, R.C. **107**, 414; **47**, 505

A List of Stars with Large Expected Angular Diameters

Ochsenbein, F., Halbwachs, J.L. **107**, 414; **47**, 523

A Table of Redshifts for Abell Clusters

Sarazin, C.L., Rood, H.J., Struble, M.F. **108**, L7

Study of  $H_{\alpha}$  Profile in 72 Be Stars

Andrillat, Y., Fehrenbach, Ch. **108**, 416; **48**, 93

Radial Velocities from Objective-prism Plates in the Direction of the Large Magellanic Cloud (Text in French)

Fehrenbach, Ch., Duflot, M. **110**, 182; **48**, 409

Geneva Photometric Boxes. O. Announcement of the Catalogue (Microfiches and Magnetic Tape)

Nicolet, B. **110**, 183; **48**, 485

List of 333 Variable, Microvariable or Suspected Variable Stars Detected in the Geneva Photometry

Rufener, F., Bartholdi, P. **110**, 184; **48**, 503

On the Combination of Partially Overlapping Sets of Data

Reed, B.C., FitzGerald, M.P. **111**, 81

Meridian Observations Made in Brorfelde (Copenhagen University Observatory) 1969–1975. Positions of 6427 Stars Brighter than 11.00 vis.mag.

Helmer, L., Fogh Olsen, H.J. **111**, 209; **49**, 13

High Angular Resolution uvby $\beta$  Observations of Stars Earlier than GO in the Intermediate and Low Latitude Areas SA 128 and SA 156

Knude, J. **111**, 210; **49**, 69

Homogenous Catalogue of Red and Infrared Magnitudes in the Photoelectric Photometric System of Kron (Magnetic Tape)

Jasniewicz, G. **111**, 211; **49**, 99

Intermediate Band Filter Spectrophotometry of Bright Galaxies. I. Observations

Solheim, J.E., de Vaucouleurs, G., de Vaucouleurs, A. **111**, 212; **49**, 109

ANS Ultraviolet Photometry, Catalogue of Point Sources

Wesselius, P.R., Van Duinen, R.J., de Jonge, A.R.W., Aalders, J.W.G., Luinge, W., Wildeman, K.J. **112**, 178; **49**, 427

Detailed Bibliography on the Surface Photometry of Galaxies

Davoust, E., Pence, W.D. **112**, 394; **49**, 631

Catalogue of Minor Planet Identities. I. Identities with Planets (1)-(2297)

Schmadel, L.D. **112**, 395; **49**, 691

Conversion of Positions and Proper Motions from B 1950.0 to the IAU System at J 2000.0

Standish, E.M., Jr. **115**, 20

A Pool of Faint Stars Applied to Star Catalogue Formation

Hering, R., Walter, H.G. **115**, 197

The Fourth Meridian Catalogue of Besançon Observatory (Text in French)

Crézé, M., Mazodier, B., Clairemidi, J., Colin, J., Considère, S., Hilaire, G., Oblak, E., Parisot, J.P., Puel, F., Andrez, R., Athanase, M., Chabod, D., Godet, L., Jeandenans, P., Mouglin, B., Vincent, A., Vincent, M. **115**, 216; **50**, 147

Equivalent Widths of Spectral Lines in B-type Stars (Text in French)

Didelon, P. **115**, 217; **50**, 199

Radio Observations at 14.7 GHz of Southern Planetary Nebulae

Milne, D.K., Aller, L.H. **115**, 217; **50**, 209

UBV-H $\beta$  Photometry of Luminous Stars Between

$l = 335^\circ$  and  $l = 6^\circ$

Dachs, J., Kaiser, D., Nikolov, A., Sherwood, W.A. **115**, 218; **50**, 261

**Celestial Mechanics**, see also N-Body Problem, Precession, Three Body Problem, Time Observations

Relativistic Perturbations for All the Planets

Lestrade, J.-F., Bretagnon, P. **105**, 42

The 6-day Photometric and Spectroscopic Periods in SS 433

Matese, J.J., Whitmire, D.P. **106**, L9

On the Invariable Plane of the Solar System

Burkhardt, G. **106**, 133

A Direct Method of Computing Small Divisors in Planetary Theory

Dvorak, R. **108**, 14

Integration Constants and Mean Elements for All the Planets

Bretagnon, P. **108**, 69

Halley's Comet: Energy and Perturbations

Buffoni, L., Manara, A., Scardia, M. **108**, 141

Planetary Nebulae with Close Binary Nuclei-corrections to Angular Momentum Loss

Salzman, J., Livio, M., Shaviv, G. **109**, 201

Diffusion of Keplerian Motions by a Stochastic Force. I. A General Formalism

Barge, P., Pellat, R., Millet, J. **109**, 228

Tidal Evolution in Close Binary Systems for High Eccentricity

Hut, P. **110**, 37

Motion of the Jovian Commensurability Resonances and the Character of the Celestial Mechanics in the Asteroid Zone: Implications for Kinematics and Structure

Torbett, M., Smoluchowski, R. **110**, 43

Method for Constructing Periodic Orbits (Text in French)

Edelman, C. **111**, 220

A Systematic Exploration of Three-dimensional Asteroidal Motion at the 2/1 Resonance

Froeschlé, C., Scholl, H. **111**, 346

The Effect of Star Passages on Cometary Orbits in the Oort Cloud

Scholl, H., Cazenave, A., Brahic, A. **112**, 157

Orbital Elements of Nereid from New Observations

Veillet, C. **112**, 277

A Manifold of Periodic Orbits in the Planar General Three-body Problem with Equal Masses

Davoust, E., Broucke, R. **112**, 305

Improvement of the Theories of Jupiter and Saturn by Harmonic Analysis (in French)

Simon, J.L., Francou, G. **114**, 125



Three Characteristic Parameters of Orbits of Hilda-type Asteroids  
*Schubart, J.* **114**, 200

Theory for the Motion of All the Planets. The VSOP82 Solution (in French)

*Bretagnon, P.* **114**, 278

Relativistic Perturbations of the Moon in ELP 2000

*Lestrade, J.F., Chapront-Touzé, M.* **116**, 75

Perturbations by Jupiter of the Particles Ejected from Comet Lexell

*Carusi, A., Kresáková, M., Valsecchi, G.B.* **116**, 201

Erratum: Tidal Evolution in Close Binary Systems for High Eccentricity

*Hut, P.* **116**, 351

**Center-to-Limb-Variation**, see Limb Brightening (Darkening)

**Cepheids**, see also Delta Scuti Stars

Photoelectric Photometry of Cepheid Variables with Periods Between One and Three days

*Diethelm, R., Tammann, G.A.* **106**, 380; **47**, 335

Overshooting from Convective Cores and the Occurrence of Loops in the HR Diagram

*Matraka, B., Wassermann, C., Weigert, A.* **107**, 283

The Dwarf Cepheid NJL 79 in Omega Centauri

*Jørgensen, H.E.* **108**, 99

The Peculiar Classical Cepheid HR 7308

*Burki, G., Mayor, M., Benz, W.* **109**, 258

UV, Optical and IR Observations of the Cepheid R Muscae

*Eichendorf, W., Heck, A., Caccin, B., Russo, G., Sollazzo, C.* **109**, 274

On Local Theories of Time-dependent Convection in the Stellar Pulsation Problem. III. The Effect of Turbulent Viscosity (Continued)

*Gonczi, G.* **110**, 1

Turbulence Variations for the Three Cepheids SV Vul, X Cyg, and  $\delta$  Cep

*Benz, W., Mayor, M.* **111**, 224

The Cepheid Period-Luminosity-Colour Relation: A Most Unsuitable Distance Indicator

*Stift, M.J.* **112**, 149

The Very Small Amplitude Cepheids HD 9250 and HD 14662

*Burki, G., Benz, W.* **115**, 30

**Charge Transfer**, see Physical Processes

Charge Transfer Ionization of  $\text{Si}^+$  by  $\text{H}^+$  at Thermal Energies

*Gargaud, M., McCarroll, R., Valiron, P.* **106**, 197

**Chemical Composition**, see Abundances

**Chemical Reactions**

The Millimeter Wave Spectrum and Discharge Chemistry of  $\text{HC}_3\text{N}$

*Winnewisser, G., Winnewisser, M., Christiansen, J.J.* **109**, 141

The Temperature Dependence of the  $\text{HCO}^+/\text{DCO}^+$  Abundance Ratio in Dense Interstellar Clouds

*Herbst, E.* **111**, 76

Model Calculations of the Molecular Composition of Interstellar Grain Mantles

*Tielens, A.G.G.M., Hagen, W.* **114**, 245

Loss of  $\text{CO}^+$  Ions by Reaction with  $\text{H}_2$  in OMC-1

*Huntress, W.T., Jr., Prasad, S.S., Kemper, P.R., Cates, R.D., Bowers, M.T.* **114**, 275

**Chromosphere**, see Solar Chromosphere, Stellar Chromospheres

**Circumstellar Matter**, see also Shell Stars

Molecular Abundances in IRC + 10216

*Lafont, S., Lucas, R., Omont, A.* **106**, 201

High Sensitivity Molecular Line Observations of IRC + 10216

*Olofsson, H., Johansson, L.E.B., Hjalmarson, Å., Nguyen-Quang-Rieu* **107**, 128

Infrared Photometry of Southern Be Stars

*Dachs, J., Wamsteker, W.* **107**, 240

Radio Emission from Young Stars

*Felli, M., Gahm, G.F., Harten, R.H., Liseau, R., Panagia, N.* **107**, 354

An H II Region Near NML Cygnus

*Habing, H.J., Goss, W.M., Winnberg, A.* **108**, 412

A Linear Polarization Survey of T Tauri Stars

*Bastien, P.* **108**, 417; **48**, 153

The Interacting Early-type Contact Binary SV Centauri

*Drechsel, H., Rahe, J., Wargau, W., Wolf, B.* **110**, 246

On the Properties of the Circumstellar Matter Around the Bright Young Variable Shell Star HR 5999

*Andersen, J., Gahm, G.F., Krelowski, J.* **113**, 176

Numerical Simulation of Radiative Transfer in Circumstellar Dust Shells. I. Spherical Shells

*Lefevre, J., Bergeat, J., Daniel, J.-Y.* **114**, 341

**Close Binaries**, see also Binary Stars, Cataclysmic Variables, Eclipsing Binaries, W Ursae Majoris Stars, X-ray Binaries

Planetary Nebulae with Close Binary Central Stars

*Livio, M.* **105**, 37

The Old-nova GK Per. II. Optical Outbursts

*Bianchini, A., Sabbadin, F., Hamzaoglu, E.* **106**, 176

LB 3459 – An O-type Subdwarf Eclipsing Binary System. Non-LTE Analysis of the Primary

*Kudritzki, R.P., Simon, K.P., Lynas-Gray, A.E., Kilkenney, D., Hill, P.W.* **106**, 254

On the Linear Adiabatic Oscillations of a Uniformly and Synchronously Rotating Component of a Binary

*Martens, L., Smeysers, P.* **106**, 317

Photometric and Astrometric Observations of Close Visual Binaries

*Rakos, K.D., Albrecht, R., Jenkner, H., Kreidl, T., Michalke, R., Oberlacher, D., Santos, E., Schermann, A., Schnell, A., Weiss, W.* **106**, 379; **47**, 221

Period Changes in Detached Close Binary Systems Due to Anisotropic Ejection of Mass

*Van Hamme, W.* **107**, 397

The Period Behaviour of the Detached Close Binary System TX Herculis

*Van Hamme, W.* **107**, 409

HR 4975: A Possible Early-Type Contact System with Unequal Components

*Waelkens, C., Bartholdi, P.* **108**, 51

Detached  $\rightarrow$  Contact Scenario for the Origin of WUMa Stars

*Vilhu, O.* **109**, 17

Observations and Analysis of the Light Curve of AE Phoenicis in 1978

*Walter, K.* **109**, 107

A Brightening of the Symbiotic Variable SY Muscae

*Michalitsianos, A.G., Kafatos, M., Feibelman, W.A., Wallerstein, G.* **109**, 136

- HD 134518: A Main Sequence Detached Eclipsing Binary  
*Giuricin, G., Mardirossian, F., Mezzetti, M.* **109**, 366
- The Ellipsoidal Binary V470 Cygni  
*Russo, G., Milano, L., Maceroni, C.* **109**, 368
- Tidal Evolution in Close Binary Systems for High Eccentricity  
*Hut, P.* **110**, 37
- Three-colour Photoelectric Observations of the Eclipsing Binary TT Her  
*Burchi, R., Dipaolantonio, A., Mancuso, S., Milano, L., Vittone, A.* **111**, 212; **49**, 129
- Forced Oscillations in Binary Systems. Toroidal Modes  
*Rocca, A.* **111**, 252
- Meridional Circulation in Optically Thick Accretion Disks  
*Cabot W., Savedoff, M.P.* **112**, L1
- On the Origin of Low Mass Cataclysmic Binaries  
*Livio, M.* **112**, 190
- Conservative Mass Transfer Calculations for Semidetached Binaries Using Response Functions  
*Hauschildt, M.* **112**, 386
- The Hot Component of KS Persei (HD 30353)  
*Drilling, J.S., Schönberner, D.* **113**, L22
- The Binary System Sirius in the Context of Stellar Evolution  
*D'Antona, F.* **114**, 289
- Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. I. Method  
*Hensler, G.* **114**, 309
- Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. II. Models  
*Hensler, G.* **114**, 319
- Mass Transfer in a Low Mass Semidetached Binary, Taking into Consideration Nonequilibrium Effects  
*Hauschildt, M.* **114**, 407
- Photometric Observations of CN Orionis  
*Schoembs, R.* **115**, 190
- CI Cyg: The Stage of Case C Mass Transfer  
*Iijima, T.* **116**, 210
- Erratum:* Tidal Evolution in Close Binary Systems for High Eccentricity  
*Hut, P.* **116**, 351

## Clouds, see Interstellar Clouds

**Clusters, see Clusters of Galaxies; Clusters, globular; Clusters, open**

## Clusters, globular

- Metallicity Distribution in the System of Globular Clusters  
*Colin, J.* **97**, 33
- A Carbon Star in the Globular Cluster Lindsay 102  
*Danks, A.C.* **106**, 4
- Position, Magnitudes and Color for Stars in the Central Part of the X-ray Globular Cluster M 15  
*Aurière, M., Cordoni, J.-P.* **106**, 179; **46**, 347
- The O Type Subdwarf ROB 162 in the Globular Cluster NGC 6397  
*Caloi, V., Castellani, V., Panagia, N.* **107**, 145
- Search for (Globular) Clusters in M31. II: Photographic photometry of the Candidates in a 70' Square Field Centered on M31  
*Buonanno, R., Corsi, C.E., Battistini, P., Bónoli, F., Fusi Pecci, F.* **107**, 412; **47**, 451
- The Dwarf Cepheid NJL 79 in Omega Centauri  
*Jørgensen, H.E.* **108**, 99

## Luminosity Functions of Star Clusters in the Small Magellanic Clouds

- Kontizas, M., Kontizas, E.* **108**, 344
- Optical Structure of the Core of the Dynamically Advanced Globular Cluster NGC 6397  
*Aurière, M.* **109**, 301
- Dissipative Evolution of Collisionless Stellar Systems. I. Cooling and Heating of a Stellar System by Binary Stars  
*Ozernoy, L.M., Dokuchaev, V.I.* **111**, 1
- Dissipative Evolution of Collisionless Stellar Systems. II. Influence of Binaries on the Evolution of Globular Clusters and Galactic Nuclei  
*Dokuchaev, V.I., Ozernoy, L.M.* **111**, 16
- Observed Radii and Structural Parameters of Clusters in the SMC  
*Kontizas, M., Daniez, E., Kontizas, E.* **111**, 209; **49**, 1
- The Influence of CN Abundances on the Evolution of Main Sequence of Low-mass Stars  
*Bazzano, A., Caputo, F., Sestili, M., Castellani, V.* **111**, 312
- Search for (Globular) Clusters in M 31. III. Structural Properties: X-ray Sources and Comparison with Galactic Globulars  
*Battistini, P., Bónoli, F., Buonanno, R., Corsi, C.E., Fusi Pecci, F.* **113**, 39
- Do Black Holes Exist at the Centres of Globular Clusters?  
*Gurzadyan, V.G.* **114**, 71
- Photometry in the Central Region of the Globular Cluster NGC 7099  
*Alcaino, G., Wamsteker, W.* **114**, 422; **50**, 141
- Abundances in Metal-poor Stars. I. The Globular Clusters NGC 2808, NGC 3201, NGC 6397, and M 22  
*Gratton, R.G.* **115**, 171
- Absolute Ultraviolet Fluxes of Elliptical Galaxies as Observed with the Astronomical Netherlands Satellite (ANS)  
*de Boer, K.S.* **115**, 218; **50**, 247
- Abundances in Metal-poor Stars. II. The Anomalous Globular Cluster  $\omega$  Centauri  
*Gratton, R.G.* **115**, 336

## Clusters of Galaxies

### A Comparison of Simulated Galaxy Clustering Models with Observations

- Zieba, S., Urbanik, M., Rudnicki, K., Aarseth, S.J.* **105**, 21
- Radio and Optical Observations of 9 Nearby Abell Clusters: A262, A347, A569, A576, A779, A1213, A1228, A2162, A2666  
*Fanti, C., Fanti, R., Feretti, L., Ficarra, A., Gioia, I.M., Giovannini, G., Gregorini, L., Mantovani, F., Maráño, B., Padrielli, L.* **105**, 200
- Quasar-generating Superclusters: An Explanation for a Clumpy Quasar Sky?  
*de Ruiter, H.R., Zuiderwijk, E.J.* **105**, 254
- Perturbations of the Hubble Flow  
*Occhionero, F., Vittorio, N., Carnevali, P., Santangelo, P.* **107**, 172
- Structure in the Universe from One Massive Neutrino?  
*Klinkhamer, F.R.* **107**, 235
- Determination of Physical Parameters in the Radio Source 5C 4.81  
*Roland, J.* **107**, 267
- The Shape and Orientation of Clusters of Galaxies  
*Binggeli, B.* **107**, 338
- Accurate Positions and Standard  $D_{25}$  Diameters for Galaxies in the Central Part of the Coma Cluster (*Text in French*)  
*Paturol, G., Perie, M., Rousseau, M.* **107**, 413; **47**, 467

- A Complete Sample of Virgo Cluster Galaxies**  
*Kraan-Korteweg, R.C.* **107**, 414; **47**, 505
- A Westerbork Survey of Clusters of Galaxies. XIV. Abell 779 and Abell 1314**  
*Wilson, A.S., Vallée, J.P.* **107**, 416; **47**, 601
- A Table of Redshifts for Abell Clusters**  
*Sarazin, C.L., Rood, H.J., Struble, M.F.* **108**, L7
- Direct Measurement of Cluster Expansion for Nearby Galaxy Clusters**  
*Kaastra, J.S.* **109**, L5
- H I-Observations of Galaxies in the Pegasus I Cluster**  
*Richter, O.-G., Huchtmeier, W.K.* **109**, 155
- Optical Investigations of Two X-ray Clusters of Galaxies: 0430.6-6133 and 0626.7-5426**  
*Materne, J., Chincarini, G., Tarengi, M., Hopp, U.* **109**, 238
- Perturbation of the Magnitude-Redshift Relation in an Inhomogeneous Relativistic Model: The Redshift Equations**  
*Nottale, L.* **110**, 9
- Global Properties of Sa-galaxies from H I-observations**  
*Huchtmeier, W.K.* **110**, 121
- The Phase-space Distribution Function of Galaxies in Clusters and the Secondary Peak**  
*Trevese, D., Vignato, A.* **110**, 238
- Gas Dynamics of Flow Past Galaxies**  
*Shaviv, G., Salpeter E.E.* **110**, 300
- Radio and X-ray Observations of the Abell 2241 Galaxy Clusters**  
*Bijleveld, W., Valentijn, E.A.* **111**, 50
- Galaxy Groups: Sample-dependence of Virial Properties**  
*Mardirossian, F., Mezzetti, M., Giuricin, G.* **111**, 86
- A Search for Radio Halo Emission at 430 MHz in 72 Rich Clusters of Galaxies**  
*Hanisch, R.J.* **111**, 97
- The Hydra I Cluster of Galaxies. A Unique Case of Membership Definition**  
*Richter, O.-G., Materne, J., Huchtmeier, W.K.* **111**, 193
- Radio and X-ray Galaxies in Abell 566**  
*Harris, D.E., Robertson, J.G., Dewdney, P.E., Costain, C.H.* **111**, 299
- New UVB Parameters for 46 E-SO Galaxies in the Virgo Cluster**  
*Michard, R.* **112**, 180; **49**, 591
- Further Investigations on Possible Correlations Between QSOs and the Lick Catalogue of Galaxies**  
*Nieto, J.-L., Seldner, M.* **112**, 321
- The South West Extension of the Perseus Supercluster**  
*Focardi, P., Marano, B., Vettolani, G.* **113**, 15
- Dynamics of the Galaxy Clusters Coma and Hydra I**  
*Fuchs, B., Materne, J.* **113**, 85
- Evolution of Rich Clusters of Galaxies**  
*Roos, N., Aarseth, S.J.* **114**, 41
- Perturbation of the Magnitude - Redshift Relation in an Inhomogeneous Relativistic Model. II. Correction to the Hubble Law Behind Clusters**  
*Nottale, L.* **114**, 261
- How Well is Gas Mixed in Clusters of Galaxies?**  
*Nepveu, M.* **114**, 337
- Galactic Neutrino Models**  
*Rephaeli, Y.* **114**, 405
- Common Properties of Clusters of Galaxies Containing Radio Halos and Implications for Models of Radio Halo Formation**  
*Hanisch, R.J.* **116**, 137
- Clusters, open (or galactic)**
- The Sun Among the Stars. V. A Second Search for Solar Spectral Analogs. The Hyades' Distance**  
*Hardorp, J.* **105**, 120
- Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166**  
*Griffin, R.F., Mayor, M., Gunn, J.E.* **106**, 221
- Membership, Basic Parameters and Luminosity Function of the Southern Open Cluster NGC 2547**  
*Clarià, J.J.* **106**, 380; **47**, 323
- On the Distance to the Giant Galactic H II Region NGC 3603**  
*Melnick, J., Grosbøl, P.* **107**, 23
- Mass Loss Rates in the Open Cluster IC 1805**  
*Llorente de Andrés, F., Burki, G., Ruiz del Arbol, J.A.* **107**, 43
- UV and Visible Photometry of the Brightest Pleiades Stars**  
*Golay, M., Maun, N.* **107**, 415; **47**, 547
- Semiconvection in Low-mass Main Sequence Stars**  
*Crowe, R.A., Mitalas, R.* **108**, 55
- Comparisons of the HR Diagrams of the Youngest Clusters in the Galaxy, the LMC and SMC. Evidence for a Large MS Widening**  
*Meylan, G., Maeder, A.* **108**, 148
- Stellar Content of Young Open Clusters. I. Blue Stragglers**  
*Mermilliod, J.-C.* **109**, 37
- Stellar Content of Young Open Clusters. II. Be Stars**  
*Mermilliod, J.-C.* **109**, 48
- Open Clusters in Our Galaxy**  
*Lynga, G.* **109**, 213
- The Initial Mass Function for Young Open Clusters**  
*Tarrab, I.* **109**, 285
- On the Radial Colour Variation in Nine Young Populous Clusters in the LMC**  
*Meylan, G.* **110**, 348
- Photographic RGU Photometry of Five Southern Open Clusters in Vela II**  
*Topaktas, L., Fenkart, R.P.* **112**, 178; **49**, 475
- Integrated Colors of Young Open Clusters as a Function of Age**  
*Tarrab, I.* **113**, 57
- Electronographic Photometry in the Galactic Cluster M 37**  
*Robin, A.* **115**, 218; **50**, 251
- A Photoelectric Investigation of Ap-stars in Open Clusters. III. NGC 2362, NGC 2546, and NGC 3228**  
*Maitzen, H.M.* **115**, 275
- Spectroscopic Identification of White Dwarfs in Galactic Clusters. II. NGC 2516**  
*Reimers, D., Koester, D.* **116**, 341
- Coalsack**
- Photographic Surface Photometry of the Milky Way. II. Surface Photometry in the Region of the Dark Cloud "Coalsack" in U, B, V, R (in German)**  
*Seidensticker, K.J., Schmidt-Kaler, T., Schlosser, W.* **114**, 60
- Cocoon Stars, see Protostars**
- Collapse**
- Mean-field Calculations of the Equation of State of Supernova Matter II**  
*Bonche, P., Vautherin, D.* **112**, 268
- Collisions, see Atomic Data, Line Broadening**
- Classical Rigid-ellipsoid model for Collisions of H<sub>2</sub> with HC<sub>3</sub>N and HC<sub>9</sub>N**  
*Bhattacharyya, S.S., Dickinson, A.S.* **107**, 26

The Collision Strength for the N III  $\lambda$  1750 Transition

*Nussbaumer, H., Storey, P.J.* **109**, 271

Pumping of H II/OH Masers: IR Line Overlaps and Collisional Excitation by H<sub>2</sub>

*Flower, D.R., Guilloteau, S.* **114**, 238

## Color Magnitude Diagram, see under the different Objects

## Colors, see also under the different Objects

## Geneva [U, B, V] Intrinsic Colours of B-type Stars

*Cramer, N.* **112**, 330

## Comets

## Note sur le spectra de la Comète 1980 u

*Huang Chang-Chun* **106**, 179; **46**, 369

## On the Brightness of Halley's Comet

*Ferrin, I.* **107**, L7

## Production of CS and S in Comet Bradfield (1979 X)

*Jackson, W.M., Halpern, J.B., Feldman, P.D., Rahe, J.* **107**, 385

## Halley's Comet: Energy and Perturbations

*Buffoni, L., Manara, A., Scardia, M.* **108**, 141

## A Model of a Comet Coma with Interstellar Molecules in the Nucleus

*Biermann, L., Giguere, P.T., Huebner, W.F.* **108**, 221

Tentative Identification of CS<sup>+</sup> in Comets

*Singh, P.D.* **108**, 369

## Evaluation of Infrared Line Emission from Constituent Molecules of Cometary Nuclei

*Yamamoto, T.* **109**, 326

## Method for Constructing Periodic Orbits (Text in French)

*Edelman, C.* **111**, 220

## The Effect of Star Passages on Cometary Orbits in the Oort Cloud

*Scholl, H., Cazenave, A., Brahic, A.* **112**, 157

## Deep Sounding with Electronograph Camera at the Prime Focus of the CFHT: Upper Limit to the Visual Brightness of Comet P/Halley During the 1981/1982 Opposition

*Felenbok, P., Picat, J.P., Chevillot, A., Guérin, J., Combes, M., Gerard, E., Lecacheux, J., Lelièvre, G.* **113**, L1

NH<sup>+</sup> - A Candidate for Comets and Interstellar Space

*de Almeida, A.A., Singh, P.D.* **113**, 199

## Dynamic Coma Models for Comet Bennett 1970 II

*Cucchiaro, A., Malaise, D.* **114**, 102

## Improved Orbital Elements for Periodic Comet Schorr (1918 III)

*de Vegt, C., Kohoutek, L., Marsden, B.G.* **114**, 147

## On the Spectrum of Comet Bradfield 1980t

*Cosmovici, C.B., Barbieri, C., Bonoli, C., Bortoletto, F., Hamzaoglu, E.* **114**, 373

## Perturbations by Jupiter of the Particles Ejected from Comet Lexell

*Carusi, A., Kresáková, M., Valsecchi, G.B.* **116**, 201

## Compact Galaxies, see also Galaxies, Quasi Stellar Objects, Seyfert Galaxies

## A New Bright Compact Galaxy in Ursa Major

*Barbieri, C., Cristiani, S., Romano, G.* **105**, 369

## The Physical Nature of the Blue Objects in the Field of 88 Leonis

*Erculiani Abati, L.* **110**, 180; **48**, 333

## Compact Objects, see also Compact Galaxies

## The Variable, Single-line WN8 Star HD 86161: Another Wolf-Rayet Star with a Low-mass Companion

*Moffat, A.F.J., Niemela, V.S.* **108**, 326

## Composite Spectra, see Spectroscopic Binaries

## Compton Scattering, see Scattering

## Contact Binaries, see Close Binaries, W Ursae Majoris Stars

## On the Evolutionary State of the W Ursae Majoris Contact Binaries

*Van Hamme, W.* **105**, 389

## On the Stability and Evolution of Contact Binaries. I

*Rahunen, T.* **109**, 66

## On the Stability of Age-zero Contact Binaries. II

*Hazlehurst, J., Höppner, W., Refsdal, S.* **109**, 117

## Planetary Nebulae with Close Binary Nuclei-corrections to Angular Momentum Loss

*Salzman, J., Livio, M., Shaviv, G.* **109**, 201

## The Interacting Early-type Contact Binary SV Centauri

*Drechsel, H., Rahe, J., Wargau, W., Wolf, B.* **110**, 246

## Contact Binaries: Angular Momentum Loss In and Out of Contact

*Rucinski, S.M.* **112**, 273

## BR Muscae: A New Early-type Contact Binary

*Clariá, J.J., Lapasset, E.* **114**, 419; **50**, 13

## Estimated Absolute Dimensions and the Inferred Lifetime and Angular Momentum of W Ursae Majoris Contact Binaries

*Van Hamme, W.* **116**, 27

## Convection, see also Turbulence

## Numerical Simulations of the Solar Granulation. I. Basic Equations and Methods

*Nordlund, Å.* **107**, 1

## Overshooting from Convective Cores and the Occurrence of Loops in the HR Diagram

*Matraka, B., Wassermann, C., Weigert, A.* **107**, 283

## Semiconvection in Low-mass Main Sequence Stars

*Crowe, R.A., Mitalas, R.* **108**, 55

## Incompressible Convection in a Radiating Atmosphere. I. General Characteristics

*Legait, A.* **108**, 287

## On Local Theories of Time-dependent Convection in the Stellar Pulsation Problem. III. The Effect of Turbulent Viscosity (Continued)

*Gonczi, G.* **110**, 1

## On the Magnitude and the Height Dependence of the Granular Vertical Flow Velocity

*Bässgen, M., Deubner, F.-L.* **111**, L1

## Vertical Structure of the Solar Photosphere II. The Small-scale Velocity Field

*Durrant, C.J., Nesis, A.* **111**, 272

## The Overshoot Layer at the Base of the Solar Convective Zone and the Problem of Magnetic Flux Storage

*van Ballegoijen, A.A.* **113**, 99

The Combined Effect of Mass Loss and Overshooting. I. The Evolution of 35 M<sub>⊙</sub> to 100 M<sub>⊙</sub> Stars During Core Hydrogen Burning

*Doom, C.* **116**, 303

The Combined Effect of Mass Loss and Overshooting. II. The Evolution of 10 M<sub>⊙</sub> to 30 M<sub>⊙</sub> Stars During Core Hydrogen Burning

*Doom, C.* **116**, 308

## The Asymmetry of Photospheric Absorption Lines. I. An Analysis of Mean Solar Line Profiles

*Kaisig, M., Durrant, C.J.* **116**, 332



**Cool Stars**, see Late Type Stars

**Corona**, see Solar Corona, Stellar Coronae

**Coronal Holes**, see Solar Corona

## Cosmic Rays

Large-scale Distribution of Galactic Gamma Radiation Observed by COS-B

Mayer-Hasselwander, H.A., Bennett, K., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermsen, W., Kanbach, G., Lebrun, F., Lichti, G.G., Masnou, J.L., Paul, J.A., Pinkau, K., Sacco, B., Scarsi, L., Swanenburg, B.N., Wills, R.D. **105**, 164

High Energy Gamma Rays from Cosmic Ray Nucleons  
Schlickeiser, R. **106**, L5

On the Transport and Propagation of Relativistic Electrons in Galaxies. The Effect of Adiabatic Deceleration in a Galactic Wind for the Steady State Case

Lerche, I., Schlickeiser, R. **107**, 148

Determination of Physical Parameters in the Radio Source 5C 4.81

Roland, J. **107**, 267

Preinjection of Cosmic Rays and Magnetic Chemically Peculiar Stars

Havnes, O. **110**, 203

Supernova Remnants and Bell's Acceleration Mechanism

Cavallo, G. **111**, 368

The Local Interstellar Medium as Traced by Gamma Rays

Strong, A.W., Bignami, G.F., Bloemen, J.B.G.M., Buccheri, R., Caraveo, P.A., Hermsen, W., Kanbach, G., Lebrun, F., Mayer-Hasselwander, H.A., Paul, J.A., Wills, R.D. **115**, 404

Transport and Propagation of Cosmic Rays in Galaxies. II. The Effect of a Galactic Wind on the Mean Lifetime and Age Distribution of Non-decaying Cosmic Rays

Lerche, I., Schlickeiser, R. **116**, 10

Discrete Sources of Cosmic Gamma Rays

Li, T.P., Wolfendale, A.W. **116**, 95

High Frequency Radio Continuum Observations of Bright Spiral Galaxies

Gioia, I.M., Gregorini, L., Klein, U. **116**, 164

Radio Continuum Emission: A Tracer for Star Formation

Klein, U. **116**, 175

Non-linear Theory of Cosmic Ray Shocks Including Self-generated Alfvén Waves

McKenzie, J.F., Völk, H.J. **116**, 191

## Cosmogony

Density Scaling of the Angular Momentum Versus Mass Universal Relationship

Carrasco, L., Roth, M., Serrano, A. **106**, 89

Mass Loss from the Protoplanetary Nebula

Horedt, G.P. **110**, 209

The Six-day Rotation Period of 1689 Floris-Jan: A New Record Among Slowly Rotating Asteroids

Schober, H.J., Surdej, J., Harris, A.W., Young, J.W. **115**, 257

**Cosmology**, see also Hubble Constant, Redshift

On the Quasar Surface Density

Véron, P., Véron-Cetty, M.P. **105**, 405

Possible Measurement of the Time Delay Between Gravitational Images of Expanding Double Radio-sources

Vanderriest, C. **106**, L1

Baryon Number Creation and Phase Transitions in the Early Universe

Hut, P., Klinkhamer, F.R. **106**, 245

The Periodicity in the Distribution of Quasar Redshifts and the Density Perturbations in the Early Universe

Fang, L.-Z., Chu, Y.-Q., Cao, Ch. **106**, 287

Double Compton Process and the Spectrum of the Microwave Background

Danese, L., De Zotti, G. **107**, 39

Perturbations of the Hubble Flow

Occionero, F., Vittorio, N., Carnevali, P., Santangelo, P. **107**, 172

Optical Identification/Flux Density Relationship for Radio Galaxies

Swarup, G., Subrahmanya, C.R., Venkatakrishna, K.L. **107**, 190

Structure in the Universe from One Massive Neutrino?

Klinkhamer, F.R. **107**, 235

The Shape and Orientation of Clusters of Galaxies

Binggeli, B. **107**, 338

A Westerbork Survey of Clusters of Galaxies. XIV. Abell 779 and Abell 1314

Wilson, A.S., Vallée, J.P. **107**, 416; **47**, 601

New Study on Quasars and Isotropy of  $H_0$

Reboul, H.J. **108**, 85

A Possible Large-scale Anisotropy of the Universe

Fliche, H.H., Souriau, J.M., Triay, R. **108**, 256

Quasars in a Control Field Far from Bright Galaxies

Arp, H., Surdej, J. **109**, 101

On the Peculiar Motion of the Local Group as Revealed by the  $B-V$  vs.  $HM$  Relation for Sc I Galaxies

Teerikorpi, P. **109**, 314

Perturbation of the Magnitude-Redshift Relation in an Inhomogeneous Relativistic Model: The Redshift Equations

Nottale, L. **110**, 9

Galaxy Groups: Sample-dependence of Virial Properties

Mardirossian, F., Mezzetti, M., Giuricin, G. **111**, 86

Spectral Index - Flux Density Relation for Extragalactic Radio Sources Found in Metre-wavelength Surveys

Gopal-Krishna, Steppe, H. **113**, 150

The Cosmic Density Wave and Its Observable Vestige

Liu, Y.-Z. **113**, 192

Statistical Correction of Projection of Radio-sources on the Sky and Application to the Apparent Size-Redshift and Linear Size-Line Width Relation

Nottale, L. **113**, 223

On the Behaviour of QSO Space Density Beyond  $z = 3.5$

Mathez, G., Nottale, L. **113**, 336

Evolution of Rich Clusters of Galaxies

Roos, N., Aarseth, S.J. **114**, 41

Massive Neutrino Halos in an Expanding Universe

Fabbri, R., Jantzen, R.T., Ruffini, R. **114**, 219

Perturbation of the Magnitude - Redshift Relation in an Inhomogeneous Relativistic Model. II. Correction to the Hubble Law Behind Clusters

Nottale, L. **114**, 261

Evolution of Low Mass Zero Metal Giants up to the Helium Flash

D'Antona, F. **115**, L1

The Precision on the Measure of  $q_0$  Using the Gravitational Lensing Effect

Lacroix, G., Schneider, J. **115**, 54

Abundance of Lithium in Unevolved Halo Stars and Old Disk Stars: Interpretation and Consequences

Spite, F., Spite, M. **115**, 357



# Null Influence of Possible Local Extragalactic Perturbations on Tests of Redshift-Distance Laws

Nicoll, J.F., Segal, I.E. **115**, 398

## Crab Nebula

### An Exploding $10 M_{\odot}$ Star: A Model for the Crab Supernova

Hillebrandt, W. **110**, L3

### Absolute Photometry of the Crab Nebula

Greve, A., van Genderen, A.M. **115**, 79

## Cross Section, see Atomic Data

## Curve-of-Growth, see Abundances

## Damping Constant, see Atomic Data

## Dark Clouds, see Dust, Interstellar Clouds, Molecular Clouds, Nebulae, Radio Frequency Lines

## Data Analysis, see also Observational Methods, Line Profiles

### An Alternative Procedure for Extracting IUE Low Resolution Spectra

Crivellari, L., Morossi, C. **106**, 332

### IUE Data Reduction. The Parameterization of the Motion of the IUE Réseau Grids and Spectral Formats as a Function of Time and Temperature

Thompson, R.W., Turnrose, B.E., Bohlin, R.C. **107**, 11

### Analysis of the Optical Spectra of Solar Flares. I. The Flare of April 30, 1976

Acampa, E., Falciani, R., Sambuco, A.M., Smaldone, L.A. **107**, 414; **47**, 485

### Automatic Image Classification

Butchins, S.A. **109**, 360

### The Distribution of H II Regions in External Galaxies. I

Considère, S., Athanassoula, E. **111**, 28

### On the Combination of Partially Overlapping Sets of Data

Reed, B.C., FitzGerald, M.P. **111**, 81

### Velocity Fields and Spectral Line Asymmetries: A Linearized Analytical Approach to the Theory of the Line Bisector in a Milne-Eddington Atmosphere

Buonaura, B., Caccin, B. **111**, 113

### "Least Square Fitting" and "CLEAN": a Combination for Analysis of One-dimensional Synthesis

Palagi, F. **111**, 211; **49**, 101

### A Digital Image Processing Method for Automatic Reduction of Echelle Spectrograms

Moreno, V., Llorente de Andrés, F., Jiménez, J. **111**, 260

### The Maximum Entropy Principle in Two-dimensional Spectral Analysis

Pendrel, J.V., Smylie, D.E. **112**, 181

### On the Linearity of the SWP Camera of the International Ultraviolet Explorer (IUE): A Correction Algorithm

Holm, A., Bohlin, R.C., Cassatella, A., Ponz, D.P., Schiffer, F.H. **112**, 341

### The Width of Echelle Orders in IUE Images as Derived with the Astronomical Image Display and Analysis (AIDA) System in Tübingen

de Boer, K.S., Preussner, P.-R., Grewing, M. **115**, 128

### Seeing-independent Definitions of the Solar Limb Position

Brown, T.M. **116**, 260

## Delta Cephei Stars, see Cepheids

## Delta Scuti Stars, see also Dwarf Cepheids

### Orbital Motion of the Pulsating Star V644 Her (Text in French)

Bardin, C., Imbert, M. **106**, 380; **47**, 319

### Mg II *h* and *k* Line Observations of Delta Scuti Variables

Fraccasini, M., Pasinetti, L.E. **107**, 326

### Photoelectric and Spectrographic Observations of $\rho$ Vir (HR 4828)

Antonello, E., Mantegazza, L. **112**, 395; **49**, 709

### HR 2724 - A New Bright Variable in the $\delta$ Scuti Instability Strip

Baade, D., Stahl, O. **114**, 131

## Density Waves

### Optical Study of NGC 6946 (in French)

Peton, A. **114**, 1

## Diffusion

### On the Detection of Abundance Stratifications in Peculiar Stars Through the Curve of Growth Method

Alecian, G. **107**, 61

### The Ultraviolet Spectrum of the Old Novae HR Del, GK Per, RR Pic, and RS Oph

Rosino, L., Bianchini, A., Rafanelli, P. **108**, 243

## Distances, see Parallaxes

## Doppler Width, see Line Profiles

## Double Galaxies, see also Interacting Galaxies

### Neutral Hydrogen Observations of Double Spiral Galaxies. I. NGC 5905 and NGC 5908

van Moorsel, G.A. **107**, 66

## Double Stars, visual

### Is 21 Ari = COU 79 a Multiple System?

Couteau, P., Morel, P.-J. **105**, 323

### Photographic Measures of Visual Double Stars

Pannunzio, R., Siciliano, F. **106**, 181; **47**, 159

### Orbital Elements of Visual Binary Stars ADS 221 et ADS 1762 (Text in French)

Scardia, M. **106**, 182; **47**, 167

### The Orbits of the Visual Double Stars ADS 10621 and ADS 15650

Morel, P.-J. **106**, 378; **47**, 217

### New Photographic Method for the Measurement of Visual Binaries

Scardia, M., Pannunzio, R. **107**, 362

### Orbits of 16 Visual Binaries

Heintz, W.D. **107**, 415; **47**, 569

### uvby $\phi$ Photometry of Visual Double Stars: A Comparison With Stellar Models and Isochrones

Olsen, E.H. **110**, 215

### Revised Orbital Elements of Visual Binary Stars ADS 3182 and ADS 3483 (Text in French)

Scardia, M. **112**, 179; **49**, 503

### Measurements of Double Stars Made in Nice. Orbits of Three Binary Stars (Text in French)

Couteau, P. **114**, 420; **50**, 49

### Measures of Southern Double Stars in 1981

Wilson, R.H., Jr. **114**, 421; **50**, 115

### Contribution to the Study of Composite Spectra. III. Spectrum Binaries: Intermediate Class Between Visual and Spectroscopic Binaries? (Text in French)

Carquillat, J.M., Nadal, R., Ginestet, N., Pedoussaut, A. **115**, 23

**Dust**, see also Grains, Interplanetary Dust, Interstellar Absorption, -Clouds, -Matter

The Origin of the Diffuse Galactic Far Infrared and Sub-millimeter Emission

*Mezger, P.G., Mathis, J.S., Panagia, N.* **105**, 372

Photoelectric Heating of H II Regions

*Maciel, W.J., Pottasch, S.R.* **106**, 1

The Correlation Between Diffuse Far Ultraviolet Background and Line of Sight Hydrogen Column: Dust Scattering and H<sub>2</sub> Fluorescence

*Jakobsen, P.* **106**, 375

The Gas to Dust Ratio and the Near-infrared Extinction Law in the Large Magellanic Cloud

*Koornneef, J.* **107**, 247

On the Phase Matrix Basic to the Scattering of Polarized Light

*Siewert, C.E.* **109**, 195

Monte Carlo Study of Highly Polarized Cool Stars

*Daniel, J.-Y.* **111**, 58

The Graphite Rich Cepheus OB 3 Association

*Barsella, B., Panagia, N., Perinotto, M.* **111**, 130

Photographic Surface Photometry of the Milky Way. II. Surface Photometry in the Region of the Dark Cloud "Coalsack" in U, B, V, R (in German)

*Seidensticker, K.J., Schmidt-Kaler, T., Schlosser, W.* **114**, 60

Numerical Simulation of Radiative Transfer in Circumstellar Dust Shells. I. Spherical Shells

*Lefèvre, J., Bergeat, J., Daniel, J.-Y.* **114**, 341

On Interstellar Linear Polarization and Grain Growth

*Aannestad, P.A.* **115**, 219

A Scattering Model for the Zodiacal Light Particles

*Schiffer, R., Thielheim, K.O.* **116**, 1

Ultraviolet Spectrum of the Sky Background at Different Galactic Latitudes

*Zvereva, A.M., Severny, A.B., Granitzky, L.V., Hua, C.T., Cruwellier, P., Courtès, G.* **116**, 312

**Dwarf Cepheids**, see Cepheids

**Dwarf Novae**, see also Cataclysmic Variables

An Atlas of Southern and Equatorial Dwarf Novae

*Vogt, N., Bateson, F.M.* **110**, 182; **48**, 383

IUE Observations of Dwarf Novae During Active Phases

*Klare, G., Krautter, J., Wolf, B., Stahl, O., Vogt, N., Wargau, W., Rahe, J.* **113**, 76

PS 74: The Discovery of a New SU UMa Type Dwarf Nova with High Orbital Inclination

*Barwig, H., Hunger, K., Kudritzki, R.P., Vogt, N.* **114**, L11

Photometric Observations of CN Orionis

*Schoembs, R.* **115**, 190

**Dwarf Stars**

The Spectra of Late-type Dwarfs and Sub-dwarfs in the Near Ultraviolet. I. Line Identifications

*Beckman, J.E., Crivellari, L., Selvelli, P.L.* **106**, 380; **47**, 295

**Dynamics**, see Stellar Dynamics

**Dynamo Theory**

Differential Rotation, Magnetic Activity and X-ray Emission of Late Type Giants

*Belvedere, G., Chiuderi, C., Paternò, L.* **105**, 133

The Structure of the Solar Magnetic Field Below the Photosphere. I. Adiabatic Flux Tube Models

*van Ballegoijen, A.A.* **106**, 43

Stability of Toroidal Flux Tubes in Stars

*Spruit, H.C., van Ballegoijen, A.A.* **106**, 58

On the Generation of Magnetic Fields in Late-type Stars: A Local Time-dependent Dynamo Model

*Robinson, R.D., Durney, B.R.* **108**, 322

Erratum: Stability of Toroidal Flux Tubes in Stars

*Spruit, H.C., van Ballegoijen, A.A.* **113**, 350

**Early Type Stars**, see also Be Stars, B Stars, Supergiants, Wolf Rayet Stars

Effective Temperatures, and Radii of Luminous O and B Stars: A Test for the Accuracy of the Model Atmospheres

*Remie, H., Lamers, H.J.G.L.M.* **105**, 85

Wind Acceleration in Early-type Stars: The Momentum Problem and the Terminal Velocity

*Panagia, N., Macchetto, F.* **106**, 266

Four-colour and H $\beta$  Photometry for O-A0 type Stars in Three Regions Near the Galactic Equator

*Westin, T.N.G.* **112**, 180; **49**, 561

**Earth**

Comparison Between Two Trigonometric Models for the Long-period Variations in the Wolf Numbers and in the Length of Day

*Picchio, G.* **111**, 326

A Comparative Spectral Analysis of the Earth's Rotation and the Solar Activity

*Carta, F., Chlistovsky, F., Manara, A., Mazzoleni, F.* **114**, 388

**Earth Atmosphere**, see also Seeing

Lower Atmosphere and Solar Seeing: an Experiment of Simultaneous Measurements of Nearby Turbulence by Thermal Radiosondes, by Angle of Arrival Statistics and Image Motion Observation

*Borgnino, J., Ceppatelli, G., Ricort, G., Righini, A.* **107**, 333

**Eclipse**, see Solar Eclipse

Results of the PHEMU79 Observation Campaign of Mutual Phenomena of the Galilean Satellites of Jupiter in 1979 (Text in French)

*Arlot, J.-E., Bernard, A., Bouchet, P., Daguillon, J., Dourneau, G., Figer, A., Helmer, G., Lecacheux, J., Merlin, Ph., Meyer, C., Mianes, P., Morando, B., Naves, D., Rousseau, J., Soulié, G., Terzan, A., Thuillot, W., Vapillon, L., Wlérick, G.* **111**, 151

Two Colour Photometry and Polarimetry of the Solar Corona of 16 February 1980

*Dürst, J.* **112**, 241

**Eclipsing Binaries**, see also Close Binaries, RS Canum Venaticorum Stars, VV Cephei Stars, W Ursae Majoris Stars

Photoelectric Photometry of the Eclipsing Binary V 338 Cephei

*Gieseking, F.* **106**, 179; **46**, 365

Revised Photometric Elements of the Eclipsing Binary EE Aquarii

*Russo, G., Sollazzo, C.* **107**, 197

The Variable Light Curve of BH Virginis

*Hoffmann, M.* **107**, 415; **47**, 561

The Visual Double W UMa Binary BV and BW Draconis

*Geyer, E.H., Hoffmann, M., Karimie, M.T.* **108**, 416; **48**, 85

Evidence for a Third Component in the U CrB System

*Van Gent, R.H.* **110**, 183; **48**, 457

## Revised Photometric Data for Six Eclipsing Binaries

Giuricin, G., Mardirossian, F., Mezzetti, M. **111**, 210; **49**, 89

## Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup

Maceroni, C., Milano, L., Russo, G. **111**, 212; **49**, 123

## Three-colour Photoelectric Observations of the Eclipsing Binary TT Her

Burchi, R., Dipaolantonio, A., Mancuso, S., Milano, L., Vittone, A. **111**, 212; **49**, 129

## VBLUW Photometry of RZ Oph (BD +7° 3832): Eclipse of the Accretion Disk

van Paradijs, J., van der Woerd, H., van der Bij, M., Lee Van Suu, A. **111**, 372

## Four-colour Photometry of Eclipsing Binaries, XIVB: Lightcurves of QX Carinae

Andersen, J., Clausen, J.V., Nordström, B., Reipurth, B. **112**, 180; **49**, 571

## AN And: A Detached Eclipsing Binary System with an Am Primary Member

Giuricin, G., Mardirossian, F., Mezzetti, M. **114**, 74

A Study of Ultraviolet Spectra of  $\zeta$  Aur/VV Cep Systems. I. Resonance Line Formation

Hempe, K. **115**, 133

## A Photometric Study of the Eclipsing Binary V 889 Aql: An Example of Relativistic Apsidal Motion

Giménez, A., Scaltritti, F. **115**, 321

## Element Abundances, see Abundances

## Element Formation, see Nuclear Reactions, Nucleosynthesis

## Elliptical Galaxies, see also Galaxies

## The Equilibrium and Bifurcation of Rotating Stellar Systems

Wiegandt, R. **105**, 326

## Influence of Ellipticity on Photometric Profiles of Elliptical Galaxies

Nieto, J.L. **107**, 415; **47**, 535

## Periodic Orbits in Triaxial Galactic Models

Magenat, P. **108**, 89

## Rotation of the Dust Lane in NGC 1947

Möllenhoff, C. **108**, 130

## On the Relation Between True and Apparent Flattenings of Elliptical Galaxies

Scuflaire, R. **111**, 371

## 21 cm Line Observations of cD Galaxies

Valentijn, E.A., Giovanelli, R. **114**, 208

## Absolute Ultraviolet Fluxes of Elliptical Galaxies as Observed with the Astronomical Netherlands Satellite (ANS)

de Boer, K.S. **115**, 218; **50**, 247

## Emission Line Stars, see also Be Stars, Herbig Haro Objects, Wolf Rayet Stars, X-ray Binaries

## Discoveries on Southern, Red-sensitive Objective-prism Plates. IV. Extension to Higher Latitudes

MacConnell, D.J. **110**, 181; **48**, 355

## Emission Lines

## Erratum: Paschen Lines in Be Stars. II. Study of Paschen Emission Lines

Briot, D. **105**, 422

## Energy Transfer

## On Hot Star Winds. I. Radiation-driven Winds

Leroy, M., Lafon, J.-P. **106**, 345

## On Hot Star Winds. II. Energy Transport – Corona-like Temperature Enhancements

Leroy, M., Lafon, J.-P. **106**, 358

## Envelopes, see Cataclysmic Variables, Circumstellar Matter, Mass Loss, P Cygni Stars, Protostars, Shell Stars, YY Orionis Stars

## Ephemerides

## Determination of the Equinox and Equator of the FK5

Fricke, W. **107**, L13

## Improved Orbital Elements for Periodic Comet Schorr (1918 III)

de Vegt, C., Kohoutek, L., Marsden, B.G. **114**, 147

## Orientation of the JPL Ephemerides, DE 200/LE 200, to the Dynamical Equinox of J 2000

Standish, E.M., Jr. **114**, 297

## Equivalent Widths

## Equivalent Widths of Spectral Lines in B-type Stars (Text in French)

Didelon, P. **115**, 217; **50**, 199

## Evershed Effect, see Sunspots

## Evolution, see Galactic Evolution, Stellar Evolution, Evolution of Galaxies

## Evolution of Galaxies

The Helium to Heavy Element Enrichment Ratio,  $\Delta Y/\Delta Z$ 

Chiosi, C., Matteucci, F. **105**, 140

## The Radio Continuum Properties of SO Galaxies

Hummel, E., Kotanyi, C.G. **106**, 183

## On the Sizes of Rings and Lenses in Disk Galaxies

Athanassoula, E., Bosma, A., Crézé, M., Schwarz, M.P. **107**, 101

## Optical Identification/Flux Density Relationship for Radio Galaxies

Swarup, G., Subrahmanya, C.R., Venkatakrishna, K.L. **107**, 190

## Chemical Evolution of Irregular Galaxies

Chiosi, C., Matteucci, F. **110**, 54

## Gas Dynamics of Flow Past Galaxies

Shaviv, G., Salpeter E.E. **110**, 300

## Excitation, see also Atomic Data

## The Origin of the Infrared [C I] Emission: H II or H I Regions?

Cesarsky, D.A. **113**, L7

## Extinction, see Earth Atmosphere, Interstellar Absorption and Extinction

## F Stars

Observed and Computed UV Spectral Distribution of A and F Stars. Determination of  $T_e$  and  $\log g$ 

Malagnini, M.L., Faraggiana, R., Morossi, C., Crivellari, L. **114**, 170

## Faraday Rotation, see Polarization

## Filaments, see also Solar Activity, Supernovae and Supernova Remnants

## A Morphological Study of Some Umbral Fine Structures

Soltan, D. **107**, 211

**Flare Stars**

- Observations of Flare Star Candidates and Discovery of Flare Activity on the dM4e Star Gliese 487  
*Asteriadis, G.* 113, 165

**Flares**, see Flare Stars, Solar Flares

**Forbidden Lines**, see Transition Probabilities

- The Origin of the Infrared [C I] Emission: H II or H I Regions?  
*Cesarsky, D.A.* 113, L7

**Formation of Galaxies**

- Baryon Number Creation and Phase Transitions in the Early Universe  
*Hut, P., Klinkhamer, F.R.* 106, 245  
 Structure in the Universe from One Massive Neutrino?  
*Klinkhamer, F.R.* 107, 235  
 The Shape and Orientation of Clusters of Galaxies  
*Binggeli, B.* 107, 338  
 Extended H I-envelopes Around Spiral Galaxies: NGC 2655 and NGC 2715  
*Huchtmeier, W.K., Richter, O.-G.* 109, 331

**Formation of Stars**, see Star Formation

**Fraunhofer Lines**, see Line ...

**Fundamental Stars**, see Astrometry, Celestial Mechanics

- Determination of the Equinox and Equator of the FK5  
*Fricke, W.* 107, L13

**Galactic Bulge**, see Galactic Structure

- Spectroscopic Observations of Spheroidal Systems: The Bulges of M 81, NGC 4736, and the Dwarf Elliptical M 32  
*Pellet, A., Simien, F.* 106, 214  
 Bulge X-ray Sources and Novae in M 31  
*Vader, J.P., van den Heuvel, E.P.J., Lewin, W.H.G., Takens, R.J.* 113, 328

**Galactic Center**

- Bursts of Star Formation in the Galactic Centre  
*Loose, H.H., Krügel, E., Tutukov, A.* 105, 342  
 WSRT Observations of the H 110 $\alpha$  Recombination Line in the Galactic Centre  
*Bregman, J.D., Schwarz, U.J.* 112, L6  
 New Variable Stars in the Direction of the Bright Cloud B in Sagittarius  
*Terzan, A., Bijaoui, A., Ju, K.H., Ounnas, C.* 112, 396; 49, 715  
 The Galactic Center - Structure and Kinematics from 21-cm Line Measurements  
*Rohlf, K., Braunsfurth, E.* 113, 237  
 Detection of the (8,8) and (9,9) Absorption Lines of Ammonia: The Hot Molecular Cloud Toward Sgr B2  
*Wilson, T.L., Ruf, K., Walmsley, C.M., Martin, R.N., Pauls, T.A., Batrla, W.* 115, 185

**Galactic Clusters**, see Clusters, open

**Galactic Disk**, see also Galactic Rotation, Galactic Structure, Stellar Dynamics and Kinematics

- Excitation of Warps in Galaxies: Fluid Model of Disk-halo Interaction  
*Bertin, G., Casertano, S.* 106, 274

On the Sizes of Rings and Lenses in Disk Galaxies

- Athanassoula, E., Bosma, A., Crézé, M., Schwarz, M.P.* 107, 101  
 Plane Galactic Orbits in Stationary and Time-dependent Rotating Bars  
*Spreckels, H., Thielheim, K.O.* 108, 206  
 Metallicity Effect and  $\lambda$  2.4  $\mu$ m Excess in the Galactic Disk  
*Guiderdoni, B., Rocca-Volmerange, B.* 109, 355  
 On the Disk Thickness of Spiral Galaxies  
*Rohlf, K., Wiemer, H.-J.* 112, 116

**Galactic Dynamics**, see Stellar Dynamics and Kinematics

**Galactic Evolution**

- Further ( $^{12}\text{C}/^{13}\text{C}$ ) Ratios from Formaldehyde: A Variation with Distance from the Galactic Center  
*Henkel, C., Wilson, T.L., Bieging, J.* 109, 344  
 On the Disk Thickness of Spiral Galaxies  
*Rohlf, K., Wiemer, H.-J.* 112, 116  
 Integrated Colors of Young Open Clusters as a Function of Age  
*Tarrab, I.* 113, 57  
 Abundance of Lithium in Unevolved Halo Stars and Old Disk Stars: Interpretation and Consequences  
*Spite, F., Spite, M.* 115, 357

**Galactic Halo**, see also Halo

- Metallicity Distribution in the System of Globular Clusters  
*Colin, J.* 97, 33  
 The Radial Velocity Field of the Milky Way Outside the Galactic Plane  
*Feitzinger, J.V., Kreitschmann, J.* 111, 255  
 Abundance of Lithium in Unevolved Halo Stars and Old Disk Stars: Interpretation and Consequences  
*Spite, F., Spite, M.* 115, 357

**Galactic Light**, see also Interstellar Radiation Field

- Photographic Surface Photometry of the Milky Way. IV. The Northern Milky Way in the Ultraviolet Spectral Region (Text in German)  
*Winkler, C., Schmidt-Kaler, T., Schlosser, W.* 115, 115

**Galactic Nucleus**, see Galactic Center

**Galactic Rotation**

- On the Evidence of a Massive Galactic Corona  
*Rohlf, K.* 105, 296  
 Spectroscopic Observations of Spheroidal Systems: The Bulges of M 81, NGC 4736, and the Dwarf Elliptical M 32  
*Pellet, A., Simien, F.* 106, 214  
 Rotation of the Dust Lane in NGC 1947  
*Möllenhoff, C.* 108, 130  
 The Velocity Field of the Ionized Gas in the Barred Galaxy NGC 925  
*Marcelin, M., Boulesteix, J., Courtès, G.* 108, 134  
 The Large Scale Trend of Rotation Curves in the Spiral Galaxies NGC 1068 and NGC 3310  
*Galletta, G., Recillas-Cruz, E.* 112, 361  
 High Resolution H I Observations of Messier 31  
*Bajaja, E., Shane, W.W.* 112, 396; 49, 745



**Galactic Structure**, see also Density Waves, Galactic Nucleus, Gould's Belt, Interstellar Matter, Radio Frequency Lines: 21 cm Line, Stellar Dynamics and Kinematics

Large-scale Distribution of Galactic Gamma Radiation Observed by COS-B

Mayer-Hasselwander, H.A., Bennett, K., Bignami, G.F., Bucheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Lebrun, F., Lichti, G.G., Masnou, J.L., Paul, J.A., Pinkau, K., Sacco, B., Scarsi, L., Swanenburg, B.N., Wills, R.D. **105**, 164

Far IR Emission of the Galactic Plane at High Longitudes

Bussoletti, E., Guidi, I., Melchiorri, F., Natale, V. **105**, 184

Optical Study of the W 51 Complex

Goudis, C., Hippelein, H. **105**, 329

The Origin of the Diffuse Galactic Far Infrared and Sub-millimeter Emission

Mezger, P.G., Mathis, J.S., Panagia, N. **105**, 372

Space Density of Stars and Interstellar Extinction near  $\eta$  and  $\chi$  Persei (Perseus I)

Becker, W., Wooden II, W.H. **106**, 179; **46**, 347

A 408 MHz All-sky Continuum Survey. II. The Atlas of Contour Maps

Haslam, C.G.T., Salter, C.J., Stoffel, H., Wilson, W.E. **106**, 181; **47**, 1

Far Infrared Survey of Extended Molecular Clouds H II Regions Complexes Along the Galactic Plane

Gispert, R., Puget, J.L., Serra, G. **106**, 293

Three-Colour Photometry of the Milky-Way Field HD 95540

Becker, W., Hassan, S.M. **106**, 379; **47**, 247

RGU Three Colour Photometry of a Field in Centaurus

Spaenhauer, A., Fang, Ch. **107**, 412; **47**, 441

Three-colour Photometry of a Field in the Galactic Anticentre Section Near NGC 2360

Morales Durán, C. **108**, 416; **48**, 139

Open Clusters in Our Galaxy

Lynga, G. **109**, 213

Extragalactic Gamma Radiation: Use of Galaxy Counts as a Galactic Tracer

Thompson, D.J., Fichtel, C.E. **109**, 352

Metallicity Effect and  $\lambda$  2.4  $\mu$ m Excess in the Galactic Disk

Guiderdoni, B., Rocca-Volmerange, B. **109**, 355

High Order Momenta of the Local Stellar Velocity Distribution

Núñez, J., Torra, J. **110**, 95

Properties and Performance of the MPI Balloon Borne Compton Telescope

Schönfelder, V., Graser, U., Diehl, R. **110**, 138

A Radio Continuum Survey of the Northern Sky at 1420 MHz – Part I

Reich, W. **110**, 180; **48**, 219

Can Giant Molecular Clouds Form in Spiral Arms?

Casoli, F., Combes, F. **110**, 287

Three-colour Photometry of a Field near the Galactic Centre (SA 133 F)

Becker, W., Fang, Ch. **111**, 209; **49**, 61

Telescope Beam Characteristics and Temperature Scale of the Maryland-Green Bank 21-cm Line Survey

Westerhout, G., Mader, G.L., Harten, R.H. **111**, 212; **49**, 137

The Maryland-Green Bank Galactic 21-cm Line Survey

Westerhout, G., Wendlandt, H.-U. **111**, 212; **49**, 143

The Radial Velocity Field of the Milky Way Outside the Galactic Plane

Feitzinger, J.V., Kreitschmann, J. **111**, 255

RGU-photometry of the Field Vela II

Becker, W., Marsoglu, A. **112**, 133

A Photoelectric UB<sub>V</sub> Sequence in a Low Extinction Puppis Field

Reed, B.C., FitzGerald, M.P. **112**, 179; **49**, 521

Four-colour and H  $\beta$  Photometry for O-A0 type Stars in Three Regions Near the Galactic Equator

Westin, T.N.G. **112**, 180; **49**, 561

New Variable Stars in the Direction of the Bright Cloud B in Sagittarius

Terzan, A., Bijaoui, A., Ju, K.H., Ounnas, C. **112**, 396; **49**, 715

Formaldehyde Absorption in S 128

Heske, A., Wendker, H.J. **113**, 170

The Theoretical Expected Galactic Distribution of WR Runaway Stars

Vanbeveren, D. **113**, 205

The Galactic Center – Structure and Kinematics from 21-cm Line Measurements

Rohlfs, K., Braunsfurth, E. **113**, 237

Photographic Surface Photometry of the Milky Way. II. Surface Photometry in the Region of the Dark Cloud "Coalsack" in U, B, V, R (in German)

Seidensticker, K.J., Schmidt-Kaler, T., Schlosser, W. **114**, 60

RGU-three Colour Photometry of a Field near NGC 6171 (Text in German)

Wiedemann, D. **114**, 421; **50**, 93

Photographic Surface Photometry of the Milky Way. IV. The Northern Milky Way in the Ultraviolet Spectral Region (Text in German)

Winkler, C., Schmidt-Kaler, T., Schlosser, W. **115**, 115

A Pool of Faint Stars Applied to Star Catalogue Formation

Hering, R., Walter, H.G. **115**, 197

UBV-H $\beta$  Photometry of Luminous Stars Between

$l = 335^\circ$  and  $l = 6^\circ$

Dachs, J., Kaiser, D., Nikolov, A., Sherwood, W.A. **115**, 218; **50**, 261

The Galactic Abundance Gradient from Supernova Remnant Observations

Binet, L., Dopita, M.A., D'Odorico, S., Benvenuti, P. **115**, 315

**Galaxies**, see also Clusters of Galaxies, Compact Galaxies, Dwarf Galaxies, Elliptical Galaxies, Formation of Galaxies, Interacting Galaxies, Local Group, M 31, Magellanic Clouds, Protogalaxies, Quasi Stellar Objects, Ring Galaxies, Seyfert Galaxies, Spiral Galaxies

Observations of NGC 604 over Six Decades in Frequency

Israel, F.P., Gatley, I., Matthews, K., Neugebauer, G. **105**, 229

The Properties of AP Librae from UB<sub>V</sub> Photoelectric Photometry

Westerlund, B.E., Wlérick, G., Garnier, R. **105**, 284

On the Transport and Propagation of Relativistic Electrons in Galaxies. The Effect of Adiabatic Deceleration in a Galactic Wind for the Steady State Case

Lerche, I., Schlickeiser, R. **107**, 148

Accurate Positions and Standard D<sub>25</sub> Diameters for Galaxies in the Central Part of the Coma Cluster (Text in French)

Paturel, G., Perle, M., Rousseau, M. **107**, 413; **47**, 467

Accurate Optical Positions of Isolated Galaxies

Brosch, N. **108**, 415; **48**, 63

Automatic Image Classification

Butchins, S.A. **109**, 360

Chemical Evolution of Irregular Galaxies

Chiosi, C., Matteucci, F. **110**, 54

# Radial Velocities of Galaxies Detected in the Arecibo 2380 MHz Survey

Marano, B., Vettolani, G. **110**, 183; **48**, 453

# Gas Dynamics of Flow Past Galaxies

Shaviv, G., Salpeter E.E. **110**, 300

# Observed Radii and Structural Parameters of Clusters in the SMC

Kontizas, M., Danezis, E., Kontizas, E. **111**, 209; **49**, 1

# Further Investigations on Possible Correlations Between QSOs and the Lick Catalogue of Galaxies

Nieto, J.-L., Seldner, M. **112**, 321

# X-rays from a Peculiar Nucleus Galaxy NGC 2196

Agrawal, P.C., Singh, K.P. **113**, 73

# Multiperture Photometry of Galaxies. II. Near-infrared Observations of Six Isolated Objects

Brosch, N., Isaacman, R. **113**, 231

# Galactic Neutrino Models

Raphaeli, Y. **114**, 405

# Transport and Propagation of Cosmic Rays in Galaxies. II. The Effect of a Galactic Wind on the Mean Lifetime and Age Distribution of Non-decaying Cosmic Rays

Lerche, I., Schlickeiser, R. **116**, 10

# Lifetime of Spurs in Galaxies

Feitzinger, J.V., Schwerdtfeger, H. **116**, 117

## Galaxies, individual

### B2 1321+31

# Multifrequency High Resolution Observations of the Large Radio Galaxy B2 1321+31

Fanti, R., Lari, C., Parma, P., Bridle, A.H., Ekers, R.D., Fomalont, E.B. **110**, 169

### M 31

# The Distribution of Thermal and Nonthermal Radio Continuum Emission of M31

Beck, R., Gräve, R. **105**, 192

# Hot Stars in the Bulge of M 31: Upper Limit to the Star Formation Rate

Deharveng, J.M., Joubert, M., Monnet, G., Donas, J. **106**, 16

# The Magnetic Field in M31

Beck, R. **106**, 121

# Search for (Globular) Clusters in M31. II: Photographic photometry of the Candidates in a 70' Square Field Centered on M31

Buonanno, R., Corsi, C.E., Battistini, P., Bónoli, F., Fusi Pecci, F. **107**, 412; **47**, 451

# High Resolution H I Observations of Messier 31

Bajaja, E., Shane, W.W. **112**, 396; **49**, 745

# Search for (Globular) Clusters in M31. III. Structural Properties: X-ray Sources and Comparison with Galactic Globulars

Battistini, P., Bónoli, F., Buonanno, R., Corsi, C.E., Fusi Pecci, F. **113**, 39

# Bulge X-ray Sources and Novae in M 31

Vader, J.P., van den Heuvel, E.P.J., Lewin, W.H.G., Takens, R.J. **113**, 328

### M 33

# Optical Structure of the Nucleus of M 33

Nieto, J.-L., Aurière, M. **108**, 334

# Wolf-Rayet Stars in Extragalactic H II Regions. II. NGC 604 — a Giant H II Region Dominated by Many Wolf-Rayet Stars

Rosa, M., D'Odorico, S. **108**, 339

# The Mass Function of Blue Stars, the Production Rate of Ly $\alpha$ photons, and the Rate of Star Formation in M 33

Berkhuijsen, E.M. **112**, 369

# Spectrophotometry of Wolf-Rayet Star Candidates in M 33

Wampler, E.J. **114**, 165

### M 82

# Accurate Optical Positions of M 82 Knots

Bettoni, D., Galletta, G. **113**, 344

### M 87

# Upper Limits of a Cosmic Infrared Background Flux as Determined by X- and Gamma-ray Observations of M87

Schlickeiser, R., Harwit, M. **107**, 186

### M 101

# The Giant Spiral Galaxy M 101. VIII. Star Formation in H I-H II Associations

Viallefond, F., Goss, W.M., Allen, R.J. **115**, 373

### NGC 925

# The Velocity Field of the Ionized Gas in the Barred Galaxy NGC 925

Marcelin, M., Boulesteix, J., Courtès, G. **108**, 134

### NGC 1068

# The Large Scale Trend of Rotation Curves in the Spiral Galaxies NGC 1068 and NGC 3310

Galletta, G., Recillas-Cruz, E. **112**, 361

### NGC 1313

# Kinematics and Dynamics of the Barred Spiral Galaxy NGC 1313

Marcelin, M., Athanassoula, E. **105**, 76

### NGC 1365

# The Radio Structure of the Nuclear Region of NGC 1365

Sandqvist, A., Jörsäter, S., Lindblad, P.O. **110**, 336

### NGC 1566

# The Galaxy NGC 1566: Distribution and Kinematics of the Ionized Gas

Comte, G., Duquenois, A. **114**, 7

### NGC 1961

# NGC 1961: Stripping of a Supermassive Spiral Galaxy

Shostak, G.S., Hummel, E., Shaver, P.A., van der Hulst, J.M., van der Kruit, P.C. **115**, 293

### NGC 2712

# Neutral Hydrogen in Two Extremely Isolated Galaxies

Krumm, N., Shane, W.W. **116**, 237

### NGC 3310

# The Large Scale Trend of Rotation Curves in the Spiral Galaxies NGC 1068 and NGC 3310

Galletta, G., Recillas-Cruz, E. **112**, 361

**NGC 3913**

Spectra and Light Curves of Three Recent Supernovae

*Barbon, R., Ciatti, F., Rosino, L., Ortolani, S., Rafanelli, P.* **116**, 43**NGC 4013**

Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies

*van der Kruit, P.C., Searle, L.* **110**, 61**NGC 4217**

Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies

*van der Kruit, P.C., Searle, L.* **110**, 61**NGC 4258**

New High Resolution Radio Observations of NGC 4258. III. VLA and WSRT Observations of the Anomalous Arms

*van Albada, G.D., van der Hulst, J.M.* **115**, 263**NGC 4321**

Spectra and Light Curves of Three Recent Supernovae

*Barbon, R., Ciatti, F., Rosino, L., Ortolani, S., Rafanelli, P.* **116**, 43**NGC 4501**

Surface Photometry of the Spiral Galaxy NGC 4501

*Send, U.* **112**, 235**NGC 4536**

Two Bright Supernovae in NGC 6946 and NGC 4536

*Barbon, R., Ciatti, F., Rosino, L.* **116**, 35**NGC 5023**

Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies

*van der Kruit, P.C., Searle, L.* **110**, 61**NGC 5301**

Neutral Hydrogen in Two Extremely Isolated Galaxies

*Krumm, N., Shane, W.W.* **116**, 237**NGC 5907**

Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies

*van der Kruit, P.C., Searle, L.* **110**, 61**NGC 6946**A Survey of the Distribution of  $\lambda$  2.8 cm Radio Continuum in Nearby Galaxies. II. NGC 6946*Klein, U., Beck, R., Buczylowski, U.R., Wielebinski, R.* **108**, 176

Optical Study of NGC 6946 (in French)

*Peton, A.* **114**, 1

Spectra of SN 1980k in NGC 6946

*Barbieri, C., Bonoli, C., Cristiani, S.* **114**, 216

Two Bright Supernovae in NGC 6946 and NGC 4536

*Barbon, R., Ciatti, F., Rosino, L.* **116**, 35

Spectra and Light Curves of Three Recent Supernovae

*Barbon, R., Ciatti, F., Rosino, L., Ortolani, S., Rafanelli, P.* **116**, 43**NGC 7673**

Recent Star-forming Activity in the Clumpy Irregular Galaxy NGC 7673

*Duflot-Augarde, R., Alloin, D.* **112**, 257**NGC 7814**

Surface Photometry of Edge-on Spiral Galaxies. IV. The Distribution of Light, Colour, and Mass in the Disk and Spheroid of NGC 7814

*van der Kruit, P.C., Searle, L.* **110**, 79**IC 342**

Temperatures and Sizescales of Giant Cloud Complexes in the Spiral Galaxy IC 342

*Ho, P.T.P., Martin, R.N., Ruf, K.* **113**, 155**Mk 10**

The Detection of Extranuclear Emission Lines in the Seyfert Galaxies Mk 10 and Mk 79

*Schulz, H.* **115**, 209**Mk 79**

The Detection of Extranuclear Emission Lines in the Seyfert Galaxies Mk 10 and Mk 79

*Schulz, H.* **115**, 209**3C 31**

Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66 B, and 3C 129

*van Breugel, W.* **110**, 225**3C 66**

Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66 B, and 3C 129

*van Breugel, W.* **110**, 225**3C 129**

Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66 B, and 3C 129

*van Breugel, W.* **110**, 225**Galaxies, Optical Observations**, see also Galaxies

Kinematics and Dynamics of the Barred Spiral Galaxy NGC 1313

*Marcelin, M., Athanassoula, E.* **105**, 76

A New Bright Compact Galaxy in Ursa Major

*Barbieri, C., Cristiani, S., Romano, G.* **105**, 369

Wolf-Rayet Stars in Extragalactic H II Regions: Discovery of a Peculiar WR in IC 1613/ 3

*D'Odorico, S., Rosa, M.* **105**, 410

The Very Large, Interacting Galaxy Pair IC 5174/75

*West, R.M., Barbier, R.* **106**, 53

The Optical Halo Around NGC 253

*Beck, R., Hutschenreiter, G., Wielebinski, R.* **106**, 112

- Spectroscopic Observations of Spheroidal Systems: The Bulges of M 81, NGC 4736, and the Dwarf Elliptical M 32  
*Pellet, A., Simien, F.* **106**, 214
- Rotation and Mass of NGC 672 and IC 1727 (Text in French)  
*Carozzi-Meyssonier, N.* **106**, 379; **47**, 237
- Search for (Globular) Clusters in M31. II: Photographic photometry of the Candidates in a 70' Square Field Centered on M31  
*Buonanno, R., Corsi, C.E., Battistini, P., Bónoli, F., Fusi Pecci, F.* **107**, 412; **47**, 451
- A Complete Sample of Virgo Cluster Galaxies  
*Kraan-Korteweg, R.C.* **107**, 414; **47**, 505
- Influence of Ellipticity on Photometric Profiles of Elliptical Galaxies  
*Nieto, J.L.* **107**, 415; **47**, 535
- The Optical Spectrum of the Radio Galaxy PKS 2152-69  
*Marenbach, G., Appenzeller, I.* **108**, 95
- Rotation of the Dust Lane in NGC 1947  
*Möllenhoff, C.* **108**, 130
- The Velocity Field of the Ionized Gas in the Barred Galaxy NGC 925  
*Marcelin, M., Boulesteix, J., Courtès, G.* **108**, 134
- Wolf-Rayet Stars in Extragalactic H II Regions. II. NGC 604 — a Giant H II Region Dominated by Many Wolf-Rayet Stars  
*Rosa, M., D'Odorico, S.* **108**, 339
- High-resolution Observations of M 87. I. The Morphology of the Jet  
*Nieto, J.-L., Lelièvre, G.* **109**, 95
- Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies  
*van der Kruit, P.C., Searle, L.* **110**, 61
- Surface Photometry of Edge-on Spiral Galaxies. IV. The Distribution of Light, Colour, and Mass in the Disk and Spheroid of NGC 7814  
*van der Kruit, P.C., Searle, L.* **110**, 79
- Redshifts of Parent Galaxies of Supernovae  
*Barbon, R., Capaccioli, M., West, R.M., Barbier, R.* **111**, 210; **49**, 73
- Intermediate Band Filter Spectrophotometry of Bright Galaxies. I. Observations  
*Solheim, J.E., de Vaucouleurs, G., de Vaucouleurs, A.* **111**, 212; **49**, 109
- New UVB Parameters for 46 E-SO Galaxies in the Virgo Cluster  
*Michard, R.* **112**, 180; **49**, 591
- Surface Photometry of the Spiral Galaxy NGC 4501  
*Send, U.* **112**, 235
- Recent Star-forming Activity in the Clumpy Irregular Galaxy NGC 7673  
*Duflot-Augarde, R., Alloin, D.* **112**, 257
- The Large Scale Trend of Rotation Curves in the Spiral Galaxies NGC 1068 and NGC 3310  
*Galletta, G., Recillas-Cruz, E.* **112**, 361
- A New Ring Galaxy in Canes Venatici  
*Brosch, N.* **112**, 388
- Detailed Bibliography on the Surface Photometry of Galaxies  
*Davoust, E., Pence, W.D.* **112**, 394; **49**, 631
- Are All Galactic Nuclear Regions Sodium Rich?  
*Véron-Cetty, M.P., Véron, P., Tarenghi, M.* **113**, 46
- Accurate Optical Positions of M 82 Knots  
*Bettoni, D., Galletta, G.* **113**, 344
- Optical Study of NGC 6946 (in French)  
*Peton, A.* **114**, 1
- The Galaxy NGC 1566: Distribution and Kinematics of the Ionized Gas  
*Comte, G., Duquennoy, A.* **114**, 7
- The Detection of Extranuclear Emission Lines in the Seyfert Galaxies Mk 10 and Mk 79  
*Schulz, H.* **115**, 209
- Photographic Photometry of Galaxies Using the INMP. I. The Lenticulars NGC 404 and NGC 524  
*Barbon, R., Capaccioli, M., Rampazzo, R.* **115**, 388
- Galaxies, Radio Observations**, see also Galaxies, Radio Frequency Lines: 21 cm Line
- Centimetre Wavelengths Radio Studies of Clumpy Irregular Galaxies  
*Heidmann, J., Klein, U., Wielebinski, R.* **105**, 188
- The Distribution of Thermal and Nonthermal Radio Continuum Emission of M31  
*Beck, R., Gräbe, R.* **105**, 192
- Observations of NGC 604 over Six Decades in Frequency  
*Israel, F.P., Gatley, I., Matthews, K., Neugebauer, G.* **105**, 229
- The Magnetic Field in M 31  
*Beck, R.* **106**, 121
- A 408 MHz All-sky Continuum Survey. II. The Atlas of Contour Maps  
*Haslam, C.G.T., Salter, C.J., Stoffel, H., Wilson, W.E.* **106**, 181; **47**, 1
- H I Line Studies of Galaxies: I-General Catalogue of 21-cm Line Data  
*Bottinelli, L., Gouguenheim, L., Paturel, G.* **106**, 182; **47**, 171
- The Radio Continuum Properties of SO Galaxies  
*Hummel, E., Kotanyi, C.G.* **106**, 183
- Neutral Hydrogen Observations of Double Spiral Galaxies. I. NGC 5905 and NGC 5908  
*van Moorsel, G.A.* **107**, 66
- A Survey of the Distribution of  $\lambda$  2.8 cm Radio Continuum in Nearby Galaxies. II. NGC 6946  
*Klein, U., Beck, R., Buczkowski, U.R., Wielebinski, R.* **108**, 176
- A 21 cm Hydrogen Line Survey of the Small Magellanic Cloud  
*Bajaja, E., Loiseau, N.* **108**, 415; **48**, 71
- H I-Observations of Galaxies in the Pegasus I Cluster  
*Richter, O.-G., Huchtmeier, W.K.* **109**, 155
- Extended H I-envelopes Around Spiral Galaxies: NGC 2655 and NGC 2715  
*Huchtmeier, W.K., Richter, O.-G.* **109**, 331
- Global Properties of Sa-galaxies from H I-observations  
*Huchtmeier, W.K.* **110**, 121
- Multifrequency High Resolution Observations of the Large Radio Galaxy B2 1321 + 31  
*Fanti, R., Lari, C., Parma, P., Bridle, A.H., Ekers, R.D., Fomalont, E.B.* **110**, 169
- The Radio Structure of the Nuclear Region of NGC 1365  
*Sandqvist, A., Jörsäter, S., Lindblad, P.O.* **110**, 336
- High Resolution H I Observations of Messier 31  
*Bajaja, E., Shane, W.W.* **112**, 396; **49**, 745
- Study of Spiral Galaxies from 392 New Measurements of 21-cm Line Data  
*Bottinelli, L., Gouguenheim, L., Paturel, G.* **113**, 61
- Spectrophotometry of Wolf-Rayet Star Candidates in M 33  
*Wampler, E.J.* **114**, 165
- 21 cm Line Observations of cD Galaxies  
*Valentijn, E.A., Giovanelli, R.* **114**, 208



**VLBI Observations of the Core Sources of a Sample of Spiral Galaxies**

*Hummel, E., Fanti, C., Parma, P., Schilizzi, R.T.* **114**, 400

**21-cm Line Profiles of 392 Spiral Galaxies**

*Bottinelli, L., Gouguenheim, L., Paturel, G.* **114**, 421; **50**, 101

**A 1415 MHz Survey of Seyfert and Related Galaxies. III**

*Wilson, A.S., Meurs, E.J.A.* **115**, 217; **50**, 217

**New High Resolution Radio Observations of NGC 4258. III.**

*van Albada, G.D., van der Hulst, J.M.* **115**, 263

**NGC 1961: Stripping of a Supermassive Spiral Galaxy**

*Shostak, G.S., Hummel, E., Shaver, P.A., van der Hulst, J.M.,*

*van der Kruit, P.C.* **115**, 293

**Radio Continuum Emission: A Tracer for Star Formation**

*Klein, U.* **116**, 175

**Neutral Hydrogen in Two Extremely Isolated Galaxies**

*Krumm, N., Shane, W.W.* **116**, 237

**Galaxy**, see Galactic ...

**Galilean Satellites**, see Satellites of Planets

### **Gamma Ray Radiation and Sources**

**X- and  $\gamma$ -ray Superfast Photometry**

*Bonazzola, S., Chevreton, M.* **105**, 1

**Large-scale Distribution of Galactic Gamma Radiation Observed by COS-B**

*Mayer-Hasselwander, H.A., Bennett, K., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Lebrun, F., Lichti, G.G., Masnou, J.L., Paul, J.A., Pinkau, K., Sacco, B., Scarsi, L., Swanenburg, B.N., Wills, R.D.* **105**, 164

**High Energy Gamma Rays from Cosmic Ray Nucleons**

*Schlickeiser, R.* **106**, L5

**Infrared Scans of Gamma Ray Burst Source Regions**

*Apparao, K.M.V., Allen, D.A.* **107**, L5

**High Energy  $\gamma$ -rays from a Relativistic Plasma**

*Giovannelli, F., Karakula, S., Tkaczyk, W.* **107**, 376

**Compact Gamma Ray Point Sources: Are Gamma Ray Sources Optically Thick at Lower Frequencies?**

*Schlickeiser, R.* **107**, 378

**COS-B Gamma-ray Measurements, Cosmic Rays and the Local Interstellar Medium**

*Lebrun, F., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Mayer-Hasselwander, H.A., Paul, J.A., Strong, A.W., Wills, R.D.* **107**, 390

**The Log N-log S Curve of Gamma-ray Bursts Detected by the SIGNE Experiments**

*Barat, C., Chambon, G., Hurley, K., Niel, M., Vedrenne, G.* **109**, L9

**Extragalactic Gamma Radiation: Use of Galaxy Counts as a Galactic Tracer**

*Thompson, D.J., Fichtel, C.E.* **109**, 352

**Properties and Performance of the MPI Balloon Borne Compton Telescope**

*Schönfelder, V., Graser, U., Diehl, R.* **110**, 138

**Hydrogen-Helium Flashes on Accreting Neutron Stars as a Possible Origin of Gamma-ray Bursts**

*Hameury, J.M., Bonazzola, S., Heyvaerts, J., Ventura, J.* **111**, 242

**Radio Measurements in the Fields of Gamma-ray Sources. I. CG 195+04**

*Sieber, W., Schlickeiser, R.* **113**, 314

**The Local Interstellar Medium as Traced by Gamma Rays**

*Strong, A.W., Bignami, G.F., Bloemen, J.B.G.M., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Lebrun, F., Mayer-Hasselwander, H.A., Paul, J.A., Wills, R.D.* **115**, 404

**Discrete Sources of Cosmic Gamma Rays**

*Li, T.P., Wolfendale, A.W.* **116**, 95

**High Frequency Radio Continuum Observations of Bright Spiral Galaxies**

*Gioia, I.M., Gregorini, L., Klein, U.* **116**, 164

**Gas Dynamics**, see also Alfvén Waves, Convection, Hydrodynamics, Plasma Physics

**The Gas Dynamics of H II Regions. VI. H II Regions in Collapsing Massive Molecular Clouds**

*Yorke, H.W., Bodenheimer, P., Tenorio-Tagle, G.* **108**, 25

**Gegenschein**, see Zodiacal Light

**General Relativity**, see Cosmology, Relativistic Astrophysics

**Cepstral Analysis of Interfering Delay Signals as Applied to Detection of Gravitational Lenses**

*Afraimovich, E.L.* **105**, L5

**Relativistic Perturbations for All the Planets**

*Lestrade, J.-F., Bretagnon, P.* **105**, 42

**Possible Measurement of the Time Delay Between Gravitational Images of Expanding Double Radio-sources**

*Vanderriest, C.* **106**, L1

**Photometry of 0957+561: Detection of Short Period Variations (in French)**

*Vanderriest, C., Bijaoui, A., Fèlenbok, P., Lelièvre, G., Schneider, J., Wlérick, G.* **110**, L11

**Gravitational Radiation from Collapsing Rotating Stellar Cores**

*Müller, E.* **114**, 53

**The Precision on the Measure of  $q_0$  Using the Gravitational Lensing Effect**

*Lacroix, G., Schneider, J.* **115**, 54

**A Photometric Study of the Eclipsing Binary V 889 Aql: An Example of Relativistic Apsidal Motion**

*Giménez, A., Scaltriti, F.* **115**, 321

**Relativistic Perturbations of the Moon in ELP 2000**

*Lestrade, J.F., Chapront-Touze, M.* **116**, 75

**Giants**, see also Late Type Stars, Supergiants

**Differential Rotation, Magnetic Activity and X-ray Emission of Late Type Giants**

*Belvedere, G., Chiuderi, C., Paternò, L.* **105**, 133

**The Absolute Magnitudes of G 5-M 3 Stars near the Giant Branch**

*Egret, D., Keenan, P.C., Heck, A.* **106**, 115

**Spectra of the Red (2,0) CN Band in 31 G and K Giant Stars**

*Kjaergaard, P., Walker, G.A.H., Yang, S.* **106**, 180; **46**, 375

**Onset of Rapid Mass Loss in Cool Giant Stars: Magnetic Field Effects**

*Mullan, D.J.* **108**, 279

**Polarimetric Observations of HD 199178 - an FK Comae Type Star**

*Pirola, V., Vilhu, O.* **110**, 351

**Evolution of Low Mass Zero Metal Giants up to the Helium Flash**

*D'Antona, F.* **115**, L1

**Carbon, Nitrogen and Oxygen Abundances in G 8-K 3 Giant Stars**

*Kjaergaard, P., Gustafsson, B., Walker, G.A.H., Hultqvist, L.* **115**, 145

**Globular Clusters**, see Clusters, globular

### Gould's Belt

On a Model of Local Gas Related to Gould's Belt  
*Olano, C.A.* **112**, 195

**Grains**, see also Dust

"Flip-flop" of Electric Potential of Dust Grains in Space  
*Meyer-Vernet, N.* **105**, 98

Far IR Emission of the Galactic Plane at High Longitudes  
*Bussoletti, E., Guidi, I., Melchiorri, F., Natale, V.* **105**, 184

Interstellar Grain Explosions: Molecule Cycling Between Gas and Dust

*d'Hendecourt, L.B., Allamandola, L.J., Baas, F., Greenberg, J.M.* **109**, L12

Model Calculations of the Molecular Composition of Interstellar Grain Mantles

*Tielens, A.G.G.M., Hagen, W.* **114**, 245

Near Infrared Spectroscopy of W 51 IRS-2

*White, G.J., Phillips, J.P., Williams, P.M., Watt, G.D., Richardson, K.J.* **116**, 293

**Granulation**, see Solar Granulation

### Gravitation, Gravitational Radiation

Possible Measurement of the Time Delay Between Gravitational Images of Expanding Double Radio-sources

*Vanderriest, C.* **106**, L1

Evolutionary Luminosity Functions of Extragalactic Sources Driven by Gravitational Power

*Cavaliere, A., Giallongo, E., Messina, A., Vagnetti, F.* **114**, L1

Gravitational Radiation from Collapsing Rotating Stellar Cores

*Müller, E.* **114**, 53

**Groups of Galaxies**, see Clusters of Galaxies

### Gyrosynchrotron Emission, Gyroresonance

**H I Regions**, see Interstellar Clouds, Radio Frequency Lines: 21 cm Line

**H II Regions**, see also Interstellar Matter, Nebulae, Orion Nebula, Supernovae and Supernova Remnants

Observations of NGC 604 over Six Decades in Frequency

*Israel, F.P., Gatley, I., Matthews, K., Neugebauer, G.* **105**, 229

Optical Study of the W 51 Complex

*Goudis, C., Hippelein, H.* **105**, 329

The Origin of the Diffuse Galactic Far Infrared and Sub-millimeter Emission

*Mezger, P.G., Mathis, J.S., Panagia, N.* **105**, 372

Wolf-Rayet Stars in Extragalactic H II Regions: Discovery of a Peculiar WR in IC 1613/ 3

*D'Odorico, S., Rosa, M.* **105**, 410

Photoelectric Heating of H II Regions

*Maciel, W.J., Pottasch, S.R.* **106**, 1

NLTE Model Atmospheres for Early-type Stars of Various Chemical Compositions and Resulting Emission-line Spectra for Surrounding H II Regions

*Borsenberger, J., Stasińska, G.* **106**, 158

An H I Absorption Determination of the Distance of W 31

*Kalberla, P.M.K., Goss, W.M., Wilson, T.L.* **106**, 167

The Radio H II Regions Associated with Cep A

*Hughes, V.A., Wouterloot, J.G.A.* **106**, 171

On the Distance to the Giant Galactic H II Region NGC 3603

*Melnick, J., Grosbøl, P.* **107**, 23

H<sub>2</sub>O Masers - Survey of the Galactic Plane. II

*Braz, M.A., Scalise, E. Jr.* **107**, 272

The Gas Dynamics of H II Regions. VI. H II Regions in Collapsing Massive Molecular Clouds

*Yorke, H.W., Bodenheimer, P., Tenorio-Tagle, G.* **108**, 25

Results of a Radio Survey for New Compact H II Regions

*Wink, J.E., Altenhoff, W.J., Mezger, P.G.* **108**, 227

On the Infrared Sources 1 and 2 in NGC 7538

*Elsässer, H., Birkle, K., Eiroa, C., Lenzen, R.* **108**, 274

Wolf-Rayet Stars in Extragalactic H II Regions. II. NGC 604 - a Giant H II Region Dominated by Many Wolf-Rayet Stars

*Rosa, M., D'Odorico, S.* **108**, 339

An H II Region Near NML Cygnus

*Habing, H.J., Goss, W.M., Winnberg, A.* **108**, 412

Star Formation in the NH<sub>3</sub> Cloud of the NGC 2071 Region

*Calamai, G., Felli, M., Giardinelli, S.* **109**, 123

A Continuum Study of Galactic Radio Sources in the Constellation of Monoceros

*Graham, D.A., Haslam, C.G.T., Salter, C.J., Wilson, W.E.* **109**, 145

Radio, Infrared, and Optical Observations of Compact H II Regions. IV. The Nebula S235B

*Krassner, J., Pipher, J.L., Sharpless, S., Herter, T.* **109**, 223

A Catalogue of Model H II Regions

*Stasińska, G.* **110**, 180; **48**, 299

The Structure of Orion B (NGC 2024): A Recombination Line and Continuum Map

*Krögel, E., Thum, C., Martin-Pintado, J., Pankonin, V.* **110**, 181; **48**, 345

Dynamics of the Supergiant Shell LMC 2 in the Large Magellanic Cloud

*Caulet, A., Deharveng, L., Georgelin, Y.M., Georgelin, Y.P.* **110**, 185

[Ni II] Emission Under Nebular Conditions

*Nussbaumer, H., Storey, P.J.* **110**, 295

Excitation and Extinction in the LMC H II Region N159A and Discovery of a Highly Excited "Blob" in Its Vicinity

*Heydari-Malayeri, M., Testor, G.* **111**, L11

The Distribution of H II Regions in External Galaxies. I

*Considère, S., Athanassoula, E.* **111**, 28

Absolute Photometry of Supernova Remnants and Emission Nebulae in the Galaxy and the Magellanic Clouds

*Greve, A., van Genderen, A.M., Dennefeld, M., Danziger, I.J.* **111**, 171

Reddening Relations of the VBLUW and UBV Systems for Objects with Emission Line Spectra

*Greve, A., van Genderen, A.M.* **111**, 185

An Unusual OH Maser Associated With V 645 Cygni

*Morris, M., Kazès, I.* **111**, 239

A Catalogue of Radio Sources within 30' of Cep A

*Hughes, V.A., Viner, M.R., Wouterloot, J.G.A.* **111**, 358

The Gas Dynamics Around OB Associations. I. Recombining H II Regions and the Formation of Expanding Neutral Shells

*Beltrametti, M., Tenorio-Tagle, G., Yorke, H.W.* **112**, 1

The Gas Dynamics Around OB Associations. II. Dependence on the Initial Ambient Density

*Tenorio-Tagle, G., Beltrametti, M., Bodenheimer, P., Yorke, H.W.* **112**, 104

Recent Star-forming Activity in the Clumpy Irregular Galaxy NGC 7673

*Duflot-Augarde, R., Alloin, D.* **112**, 257

Formaldehyde Absorption Measurements of Selected Galactic Molecular Clouds

*Biegging, J., Wilson, T.L., Downes, D.* **112**, 394; **49**, 607

Extended and Anisotropic High-velocity Gas Flows in the Orion-KL Region

*Olofsson, H., Ell  r, J., Hjalmarson,   ., Rydbeck, G.* **113**, L18

The H II Region - Molecular Cloud Complex Sh 2-269: An Optical and Millimeter Wavelength Study

*Heydari-Malayeri, M., Testor, G., Baudry, A., Lafon, G., de la No  , J.* **113**, 118

The Kinematical Structure of the Bipolar Nebula S 106

*Solf, J., Carsenty, U.* **113**, 142

The Galaxy NGC 1566: Distribution and Kinematics of the Ionized Gas

*Comte, G., Duquenois, A.* **114**, 7

2-4  $\mu$ m Spectroscopy of the Compact H II Region G 45.13 + 0.14 A

*Krassner, J.* **114**, 19

Formaldehyde Absorption Towards OH Sources

*Forster, J.R., Boland, W.* **114**, 109

Kinematics of Ring-shaped Nebulae in the LMC. II. The Radial Velocity Field of N 185

*Rosado, M., Georgelin, Y.M., Georgelin, Y.P., Laval, A., Monnet, G.* **115**, 61

Aperture Synthesis Observations of Recombination Lines from Compact H II Regions. V. NGC 7538

*Goss, W.M., van Gorkom, J.H., Forster, J.R.* **115**, 164

The Effects of the Coronal Gas on the Champagne Phase

*Tenorio-Tagle, G., Bedijn, P.J.* **115**, 207

Far Infrared Observations of a Star Forming Region in Serpens

*Nordh, H.L., van Duinen, R.J., Sargent, A.I., Fridlund, C.V.M., Aalders, J.W.G., Beintema, D.* **115**, 308

The Giant Spiral Galaxy M 101. VIII. Star Formation in H I-H II Associations

*Viallefond, F., Goss, W.M., Allen, R.J.* **115**, 373

M1-67: A Wind-blown Bubble Carried Along by the High-velocity WR Star 209 BAC?

*Solf, J., Carsenty, U.* **116**, 54

Physical Conditions in H II/OH Maser Regions

*Guilloteau, S.* **116**, 101

Radio Continuum Emission: A Tracer for Star Formation

*Klein, U.* **116**, 175

A New Near-infrared Source in the Molecular Cloud Associated with S106

*Hofmann, R.G., Larson, H.P.* **116**, 179

Near Infrared Spectroscopy of W 51 IRS-2

*White, G.J., Phillips, J.P., Williams, P.M., Watt, G.D., Richardson, K.J.* **116**, 293

## Halo

On the Evidence of a Massive Galactic Corona

*Rohfs, K.* **105**, 296

The Optical Halo Around NGC 253

*Beck, R., Hutschenreiter, G., Wiebelski, R.* **106**, 112

Excitation of Warps in Galaxies: Fluid Model of Disk-halo Interaction

*Bertin, G., Casertano, S.* **106**, 274

On the Transport and Propagation of Relativistic Electrons in Galaxies. The Effect of Adiabatic Deceleration in a Galactic Wind for the Steady State Case

*Lerche, I., Schlickeiser, R.* **107**, 148

Surface Photometry of Edge-on Spiral Galaxies. III. Properties of the Three-dimensional Distribution of Light and Mass in Disks of Spiral Galaxies

*van der Kruit, P.C., Searle, L.* **110**, 61

Surface Photometry of Edge-on Spiral Galaxies. IV. The Distribution of Light, Colour, and Mass in the Disk and Spheroid of NGC 7814

*van der Kruit, P.C., Searle, L.* **110**, 79

Spectroscopic Orbits for Two Very High Velocity Halo Stars: HD 111980 and HD 149414

*Mayor, M., Turon, C.* **110**, 241

A Search for Radio Halo Emission at 430 MHz in 72 Rich Clusters of Galaxies

*Hanisch, R.J.* **111**, 97

Massive Neutrino Halos in an Expanding Universe

*Fabbri, R., Jantzen, R.T., Ruffini, R.* **114**, 219

Galactic Neutrino Models

*Rephaeli, Y.* **114**, 405

Transport and Propagation of Cosmic Rays in Galaxies. II. The Effect of a Galactic Wind on the Mean Lifetime and Age Distribution of Non-decaying Cosmic Rays

*Lerche, I., Schlickeiser, R.* **116**, 10

## Helium Stars

Fine Analysis of the Intermediate Helium-star CPD-46  3093

*Groote, D., Kaufmann, J.P., Lange, A.* **114**, 420; **50**, 77

Shell and Photosphere of  $\sigma$  OriE: New Observations and Improved Model

*Groote, D., Hunger, K.* **116**, 64

Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9  4395 and BD +10  2179

*Hamann, W.-R., Sch  nberner, D., Heber, U.* **116**, 273

**Herbig Haro Objects**, see also T Tauri Stars

The Radio H II Regions Associated with Cep A

*Hughes, V.A., Wouterloot, J.G.A.* **106**, 171

The Visible and Ultraviolet Continuum from a Herbig-Haro Object in the Core of M 16 (NGC 6611)

*Meaburn, J.* **114**, 367

## High Velocity Clouds

Fine Structure in High Velocity Clouds Near the South Celestial Pole

*Morris, R.* **115**, 249

## High Velocity Stars

Radial Velocities from Objective-prism Plates in the Direction of the Large Magellanic Cloud (Text in French)

*Fehrenbach, Ch., Duflot, M.* **110**, 182; **48**, 409

**Horizontal Branch Stars**, see also Clusters, globular; RR Lyrae Stars

**HR Diagram**, see Hertzsprung Russell Diagram

**Hubble Constant**, see also Cosmology, Redshift

New Study on Quasars and Isotropy of  $H_0$

*Reboul, H.J.* **108**, 85

On the Peculiar Motion of the Local Group as Revealed by the  $B-V$  vs.  $HM$  Relation for Sc I Galaxies

*Teerikorpi, P.* **109**, 314

Two Bright Supernovae in NGC 6946 and NGC 4536

*Barbon, R., Ciatti, F., Rosino, L.* **116**, 35

Spectra and Light Curves of Three Recent Supernovae

*Barbon, R., Ciatti, F., Rosino, L., Ortolani, S., Rafanelli, P.* **116**, 43

**Hydrodynamics, Hydromagnetics**, see also Accretion, Density Waves, Dynamo Theory, Gas Dynamics, Magnetohydrodynamics, Plasma Physics

Heating of Stellar Chromospheres when Magnetic Fields are Present

*Ulmschneider, P., Stein, R.F.* **106**, 9

On the Theory of Thermally Sustained Stellar Winds

*Souffrin, P.* **106**, 14

Stability of Toroidal Flux Tubes in Stars

*Spruit, H.C., van Ballegooijen, A.A.* **106**, 58

Numerical Simulations of the Solar Granulation. I. Basic Equations and Methods

*Nordlund, Å.* **107**, 1

On the Thermal Stability of Hot Coronal Loops: The Coupling Between Chromosphere and Corona

*Kuin, N.P.M., Martens, P.C.H.* **108**, L1

A Comparative Study of Computational Methods in Cosmic Gas Dynamics

*van Albada, G.D., van Leer, B., Roberts, W.W., Jr.* **108**, 76

Incompressible Convection in a Radiating Atmosphere. I. General Characteristics

*Legait, A.* **108**, 287

Planetary Nebulae with Close Binary Nuclei—corrections to Angular Momentum Loss

*Salzman, J., Livio, M., Shaviv, G.* **109**, 201

The Structure of Cosmic Ray Shocks

*Axford, W.I., Leer, E., McKenzie, J.F.* **111**, 317

Meridional Circulation in Optically Thick Accretion Disks

*Cabot W., Savedoff, M.P.* **112**, L1

The Gas Dynamics Around OB Associations. II. Dependence on the Initial Ambient Density

*Tenorio-Tagle, G., Beltrametti, M., Bodenheimer, P., Yorke, H.W.* **112**, 104

Nonlinear Shear Instabilities in an Infinite Slab

*Nepveu, M.* **112**, 223

*Erratum: Stability of Toroidal Flux Tubes in Stars*

*Spruit, H.C., van Ballegooijen, A.A.* **113**, 350

3D Models for Self-gravitating, Rotating Magnetic Interstellar Clouds

*Dorfi, E.* **114**, 151

Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. I. Method

*Hensler, G.* **114**, 309

Hydrodynamical Calculations of Accretion Disks in Close Binary Systems. II. Models

*Hensler, G.* **114**, 319

How Well is Gas Mixed in Clusters of Galaxies?

*Nepveu, M.* **114**, 337

The Effects of the Coronal Gas on the Champagne Phase

*Tenorio-Tagle, G., Bedijn, P.J.* **115**, 207

Shock Fronts Produced by Stellar Winds in the Interstellar Gas

*Huang, R.Q., Weigert, A.* **116**, 348

**H $\alpha$** , see also Line Profiles

High Resolution Observations of the  $H_\alpha$  Profile from  $\eta$  Car

*Melnick, J., Ruiz, M.T., Maza, J.* **111**, 375

**Identification**, see Optical Identification

**Infrared Radiation**, see also OH Sources, and under the different Objects

Far IR Emission of the Galactic Plane at High Longitudes

*Bussoletti, E., Guidi, I., Melchiorri, F., Natale, V.* **105**, 184

Observations of NGC 604 over Six Decades in Frequency

*Israel, F.P., Gatley, I., Matthews, K., Neugebauer, G.* **105**, 229

The Origin of the Diffuse Galactic Far Infrared and Sub-millimeter Emission

*Mezger, P.G., Mathis, J.S., Panagia, N.* **105**, 372

*Erratum: Infrared Lines of O I and Ca II in Be Stars with Paschen Emission Lines*

*Briot, D.* **105**, 422

Far Infrared Survey of Extended Molecular Clouds H II Regions Complexes Along the Galactic Plane

*Gispert, R., Puget, J.L., Serra, G.* **106**, 293

Infrared Scans of Gamma Ray Burst Source Regions

*Apparao, K.M.V., Allen, D.A.* **107**, L5

Upper Limits of a Cosmic Infrared Background Flux as Determined by X- and Gamma-ray Observations of M87

*Schlickeiser, R., Harwit, M.* **107**, 186

New Infrared Counterparts of Southern Type II OH Maser Sources

*Epchtein, N., Nguyen-Quang-Rieu* **107**, 229

Infrared Photometry of Southern Be Stars

*Dachs, J., Wamsteker, W.* **107**, 240

Mid-infrared Observations of Seyfert 1 and Narrow-line X-ray Galaxies

*Glass, I.S., Moorwood, A.F.M., Eichendorf, W.* **107**, 276

Spectroscopy and Infrared Photometry of Cyg OB 2 Stars: Velocity Law and Mass-loss Rates

*Leitherer, C., Heffele, H., Stahl, O., Wolf, B.* **108**, 102

On the Infrared Sources 1 and 2 in NGC 7538

*Elsässer, H., Birkle, K., Eiroa, C., Lenzen, R.* **108**, 274

Radio, Infrared, and Optical Observations of Compact H II Regions. IV. The Nebula S235B

*Krassner, J., Pipher, J.L., Sharpless, S., Herter, T.* **109**, 223

Near-infrared Slit Scans of Molecular Cloud Sources. II

*Dyck, H.M., Staude, H.J.* **109**, 320

Evaluation of Infrared Line Emission from Constituent Molecules of Cometary Nuclei

*Yamamoto, T.* **109**, 326

Metallicity Effect and  $\lambda$  2.4  $\mu$ m Excess in the Galactic Disk

*Guiderdoni, B., Rocca-Volmerange, B.* **109**, 355

415  $\mu$ m Brightness Temperature of Titan

*Loewenstein, R.F., Hildebrand, R.H.* **110**, L18

Interferometric Measurements of Stellar Positions in the Infrared

*Sutton, E.C., Subramanian, S., Townes, C.H.* **110**, 324

Circumstellar Shells in M 17

*Chini, R.* **110**, 332

Infrared Energy Distribution of Cyg. OB2 No. 12

*Persi, P., Ferrari-Toniolo, M.* **111**, L7

New Infrared Objects Towards Southern Type I OH and  $H_2$ O Masers

*Braz, M.A., Epchtein, N.* **111**, 91



# On Solar Hydrogen Lines in the Far-infrared and Submillimeter Spectrum

*Hoang-Binh, D.* **112**, L3

# A Spectrophotometric Study of Kepler Supernova Remnant

*Dennefeld, M.* **112**, 215

# A First Order Approximation Model of CO<sub>2</sub> Infrared Bands in the Venusian Lower Thermosphere

*Battaner, E., Rodrigo, R., López-Puertas, M.* **112**, 229

# Near-infrared Sources in the NGC 6334 Molecular Cloud

*Persi, P., Ferrari-Toniolo, M.* **112**, 292

# Multiperture Photometry of OH/IR Stars. II. Near-infrared Observations of Six Isolated Objects

*Brosch, N., Isaacman, R.* **113**, 231

# 2-4 $\mu$ m Spectroscopy of the Compact H II Region G 45.13+0.14 A

*Krassner, J.* **114**, 19

# Infrared Emission and Star Formation in NGC 5253

*Moorwood, A.F.M., Glass, I.S.* **115**, 84

# Infrared Observations of OH/IR Stars

*Willems, F., de Jong, T.* **115**, 213

# Far Infrared Observations of a Star Forming Region in Serpens

*Nordh, H.L., van Duinen, R.J., Sargent, A.I., Fridlund, C.V.M., Aalders, J.W.G., Beintema, D.* **115**, 308

# CO J=3 $\rightarrow$ 2 and Submillimetre Continuum Observations of Two Molecular Outflow Sources

*Phillips, J.P., White, G.J., Ade, P.A.R., Cunningham, C.T., Richardson, K.J., Robson, E.I., Watt, G.D.* **116**, 130

# A New Near-infrared Source in the Molecular Cloud Associated with S106

*Hofmann, R.G., Larson, H.P.* **116**, 179

# Near Infrared Spectroscopy of W 51 IRS-2

*White, G.J., Phillips, J.P., Williams, P.M., Watt, G.D., Richardson, K.J.* **116**, 293

# Instability, see also Datability

## The Unsteady Beam

*Nepveu, M.* **105**, 15

# Plasma-magnetospheric Interaction in X-ray Sources: An Analysis of the Linear Kelvin Helmholtz Instability

*Wang, Y.-M., Welter, G.L.* **113**, 113

# Stability of Differential Rotation in Stars

*Knobloch, E., Spruit, H.C.* **113**, 261

# The Thermal Stability of Solar Coronal Loops in Hydrostatic Equilibrium

*Wragg, M.A., Priest, E.R.* **113**, 269

## Instability Strip

### HR 2724—A New Bright Variable in the $\delta$ Scuti Instability Strip

*Baade, D., Stahl, O.* **114**, 131

## Instruments, see also Observational Methods, Radio Telescopes

### The Short Term Stability of the Brorfelde Transit Circle

*Fabricius, C.* **105**, 413

### Comments on Determination of Division Corrections

*Branham, L., Jr.* **108**, L5

### Properties and Performance of the MPI Balloon Borne Compton Telescope

*Schönfelder, V., Graser, U., Diehl, R.* **110**, 138

### Experiences with the U.S. Naval Observatory Glass Circles

*Rafferty, T.J., Klock, B.L.* **114**, 95

### A Stable Acousto-optical Spectrometer for Millimeter Radio Astronomy

*Masson, C.R.* **114**, 270

### Magnetic Field in Solar Prominences Measured with a New Spectrally Scanning Magnetograph

*Kim, I.S., Koutchmy, S., Nikolsky, G.M., Stellmacher, G.* **114**, 347

### Effect of Different Sources of Variation of Latitude Data on Meridian Circle Catalogues

*Rafferty, T.J.* **114**, 420; **50**, 27

### An Accurate Derivation of the Division Corrections in a Photoelectric Meridian Circle

*Miyamoto, M., Kühne, C.* **115**, 216; **50**, 173

### Inventory of Major Operational and Planned Ground-based Astronomical Telescopes of the Countries Represented in the European Science Foundation (Second Edition, 1982)

*European Science Foundation* **115**, 216; **50**, 187

## Interacting Galaxies

### The Very Large, Interacting Galaxy Pair IC 5174/75

*West, R.M., Barbier, R.* **106**, 53

### Rotation and Mass of NGC 672 and IC 1727 (Text in French)

*Carozzi-Meyssonier, N.* **106**, 379; **47**, 237

## Interferometry, see Double Stars, Speckle Interferometry, Very Long Base Line Interferometry

### Detection of a 192 s Oscillatory Component on the Sun at 8.6 mm Wavelength

*Bocchia, R.* **106**, 79

### Radio Imaging of Solar Flares Using the Very Large Array: New Insights into Flare Process

*Kundu, M.R., Schmahl, E.J., Velusamy, T., Vlahos, L.* **108**, 188

### Interferometric Measurements of Stellar Positions in the Infrared

*Sutton, E.C., Subramanian, S., Townes, C.H.* **110**, 324

### Inventory of Major Operational and Planned Ground-based Astronomical Telescopes of the Countries Represented in the European Science Foundation (Second Edition, 1982)

*European Science Foundation* **115**, 216; **50**, 187

## Intergalactic Matter

### A Possible Large-scale Anisotropy of the Universe

*Fliche, H.H., Souriau, J.M., Triay, R.* **108**, 256

### H I-Observations of Galaxies in the Pegasus I Cluster

*Richter, O.-G., Huchtmeier, W.K.* **109**, 155

### Gas Dynamics of Flow Past Galaxies

*Shaviv, G., Salpeter E.E.* **110**, 300

### Radio and X-ray Observations of the Abell 2241 Galaxy Clusters

*Bijleveld, W., Valentijn, E.A.* **111**, 50

### How Well is Gas Mixed in Clusters of Galaxies?

*Nepveu, M.* **114**, 337

## Interiors, see Stellar Evolution, Stellar Structure

## Interplanetary Dust, see also Interplanetary Matter, Zodiacal Light

### "Flip-flop" of Electric Potential of Dust Grains in Space

*Meyer-Vernet, N.* **105**, 98

### High Energy Gamma Rays from Cosmic Ray Nucleons

*Schlickeiser, R.* **106**, L5

### Solar Wind Pressure on Interplanetary Dust

*Mukai, T., Yamamoto, T.* **107**, 97

### Stability of the Zodiacal Light from Minimum to Maximum of the Solar Cycle (1974-1981)

*Leinert, C., Richter, I., Planck, B.* **110**, 111

# Search for Short Term Variations of Zodiacal Light and Optical Detection of Interplanetary Plasma Clouds

*Richter, I., Leinert, C., Planck, B.* **110**, 115

# Diffusion of Keplerian Motions by a Stochastic Force. II. Lorentz Scattering of Interplanetary Dusts

*Barge, P., Pellat, R., Millet, J.* **115**, 8

# A Scattering Model for the Zodiacal Light Particles

*Schiffer, R., Thielheim, K.O.* **116**, 1

**Interplanetary Matter**, see also Interplanetary Dust, Solar Wind, Zodiacal Light

## Interstellar Absorption and Extinction

### The Lick Galaxy Counts, the Local Interstellar Absorption and Molecular Hydrogen

*Strong, A.W., Lebrun, F.* **105**, 159

### Optical Study of the W 51 Complex

*Goudis, C., Hippelein, H.* **105**, 329

### Space Density of Stars and Interstellar Extinction near $\eta$ and $\gamma$ Persei (Perseus I)

*Becker, W., Wooden II, W.H.* **106**, 179; **46**, 347

### The Correlation Between Diffuse Far Ultraviolet Background and Line of Sight Hydrogen Column: Dust Scattering and H<sub>2</sub> Fluorescence

*Jakobsen, P.* **106**, 375

### Geneva Photometric Boxes. II. The Reddening Towards the Galactic Poles

*Nicolet, B.* **106**, 378; **47**, 199

### The Gas to Dust Ratio and the Near-infrared Extinction Law in the Large Magellanic Cloud

*Koornneef, J.* **107**, 247

### COS-B Gamma-ray Measurements, Cosmic Rays and the Local Interstellar Medium

*Lebrun, F., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Mayer-Hasselwander, H.A., Paul, J.A., Strong, A.W., Wills, R.D.* **107**, 390

### RGU Three Colour Photometry of a Field in Centaurus

*Spaenhauer, A., Fang, Ch.* **107**, 412; **47**, 441

### On the Infrared Sources 1 and 2 in NGC 7538

*Elsässer, H., Birkle, K., Eiroa, C., Lenzen, R.* **108**, 274

### Three-colour Photometry of a Field in the Galactic Anticentre Section Near NGC 2360

*Morales Durán, C.* **108**, 416; **48**, 139

### Open Clusters in Our Galaxy

*Lynga, G.* **109**, 213

### The Graphite Rich Cepheus OB 3 Association

*Barsella, B., Panagia, N., Perinotto, M.* **111**, 130

### Reddening Relations of the VBLW and UVV Systems for Objects with Emission Line Spectra

*Greve, A., van Genderen, A.M.* **111**, 185

### Three-colour Photometry of a Field near the Galactic Centre (SA 133 F)

*Becker, W., Fang, Ch.* **111**, 209; **49**, 61

### High Angular Resolution uvby $\beta$ Observations of Stars Earlier than GO in the Intermediate and Low Latitude Areas SA 128 and SA 156

*Knude, J.* **111**, 210; **49**, 69

### NGC 2440: Ionization Structure, Extinction, and Near Infrared Spectrum

*Condal, A.R.* **112**, 124

### RGU-photometry of the Field Vela II

*Becker, W., Marsoglu, A.* **112**, 133

### A Photoelectric UVB Sequence in a Low Extinction Puppis Field

*Reed, B.C., FitzGerald, M.P.* **112**, 179; **49**, 521

### A Spectrophotometric Study of Kepler Supernova Remnant

*Dennefeld, M.* **112**, 215

### Sk 143: An SMC Star with a Galactic-type Ultraviolet Interstellar Extinction

*Lequeux, J., Maurice, E., Prévot-Burnichon, M.-L., Prévot, L., Rocca-Volmerange, B.* **113**, L15

### On the Properties of the Circumstellar Matter Around the Bright Young Variable Shell Star HR 5999

*Andersen, J., Gahm, G.F., Krelowski, J.* **113**, 176

### The Two-colour Diagram of Luminous Stars in the Magellanic Clouds (Text in German)

*Isserstedt, J.* **115**, 97

### The Law of Interstellar Absorption in the Wave-number Interval $0.95 \mu^{-1}$ to $3.03 \mu^{-1}$

*Ardeberg, A., Virdefors, B.* **115**, 347

### The Unprecedented Light Variations of NGC 2346

*Méndez, R.H., Gathier, R., Niemela, V.S.* **116**, L5

**Interstellar Clouds**, see also Dust, Interstellar Absorption and Extinction, Radio Frequency Lines: Molecular Lines

### On the Angular Momentum of Colliding Interstellar Clouds

*Horedt, G.P.* **106**, 29

### Anomalous Motions of H I Clouds

*Shaver, P.A., Radhakrishnan, V., Anantharamaiah, K.R., Rettack, D.S., Wamsteker, W., Danks, A.C.* **106**, 105

### An Effelsberg-Green Bank Galactic H I Absorption Line Survey. I. The Observations

*Mebold, U., Winnberg, A., Kalberla, P.M.K., Goss, W.M.* **106**, 180; **46**, 389

### Westerbork Observations of H I Absorption in the Direction of Sgr A

*Schwarz, U.J., Ekers, R.D., Goss, W.M.* **110**, 100

### The Origin of the Infrared [C I] Emission: H II or H I Regions?

*Cesarsky, D.A.* **113**, L7

### An Effelsberg - Green Bank Galactic H I Absorption Line Survey. II. Results and Interpretation

*Mebold, U., Winnberg, A., Kalberla, P.M.W., Goss, W.M.* **115**, 223

**Interstellar Matter**, see also Abundance, interstellar; H II Regions, Nebulae, OH Sources, Radio Frequency Lines

### Interstellar Polarization in the Immediate Solar Neighbourhood

*Tinbergen, J.* **105**, 53

### "Flip-flop" of Electric Potential of Dust Grains in Space

*Meyer-Vernet, N.* **105**, 98

### The Radio Morphology of Supernova Remnants

*Shaver, P.A.* **105**, 306

### Studies of Nearly Face-on Spiral Galaxies. I. The Velocity Dispersion of the H I Gas in NGC 3938

*van der Kruit, P.C., Shostak, G.S.* **105**, 351

### An Effelsberg-Green Bank Galactic H I Absorption Line Survey. I. The Observations

*Mebold, U., Winnberg, A., Kalberla, P.M.K., Goss, W.M.* **106**, 180; **46**, 389

### Classical Rigid-ellipsoid model for Collisions of H<sub>2</sub> with HC<sub>3</sub>N and HC<sub>5</sub>N

*Bhattacharyya, S.S., Dickinson, A.S.* **107**, 26

## COS-B Gamma-ray Measurements, Cosmic Rays and the Local Interstellar Medium

Lebrun, F., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermsen, W., Kanbach, G., Mayer-Hasselwander, H.A., Paul, J.A., Strong, A.W., Wills, R.D. **107**, 390

## A Comparative Study of Computational Methods in Cosmic Gas Dynamics

van Albada, G.D., van Leer, B., Roberts, W.W., Jr. **108**, 76

## Extragalactic Gamma Radiation: Use of Galaxy Counts as a Galactic Tracer

Thompson, D.J., Fichtel, C.E. **109**, 352

## Global Properties of Sa-galaxies from H I-observations

Huchtmeier, W.K. **110**, 121

## The Structure of Orion B (NGC 2024): A Recombination Line and Continuum Map

Krügel, E., Thum, C., Martin-Pintado, J., Pankonin, V. **110**, 181; **48**, 345

## A Catalogue of Radio Sources within 30' of Cep A

Hughes, V.A., Viner, M.R., Wouterloot, J.G.A. **111**, 358

## On a Model of Local Gas Related to Gould's Belt

Olano, C.A. **112**, 195

## Formaldehyde Absorption Measurements of Selected Galactic Molecular Clouds

Bieging, J., Wilson, T.L., Downes, D. **112**, 394; **49**, 607

## Causal Relationship Between Pulsar Long-term Intensity Variations and the Interstellar Medium

Sieber, W. **113**, 311

## Model Calculations of the Molecular Composition of Interstellar Grain Mantles

Tielens, A.G.G.M., Hagen, W. **114**, 245

## An Effelsberg - Green Bank Galactic H I Absorption Line Survey.

## II. Results and Interpretation

Mebold, U., Winnberg, A., Kalberla, P.M.W., Goss, W.M. **115**, 223

## The Unprecedented Light Variations of NGC 2346

Méndez, R.H., Gathier, R., Niemela, V.S. **116**, L5

## Interstellar Radiation Field

## Contribution of the Warm Intercloud Medium to the Diffuse Ultraviolet Background

Deharveng, J.M., Joubert, M., Barge, P. **109**, 179

## Interstellar Reddening, see Interstellar Absorption and Extinction

## Intrinsic Colors

## The Two-colour Diagram of Luminous Stars in the Magellanic Clouds (Text in German)

Isserstedt, J. **115**, 97

## Ionization

## The State of Ionization in Dense Molecular Clouds

Guélin, M., Langer, W.D., Wilson, R.W. **107**, 107

## A Catalogue of Model HII Regions

Stasinska, G. **110**, 180; **48**, 299

The Temperature Dependence of the  $\text{HCO}^+/\text{DCO}^+$  Abundance Ratio in Dense Interstellar Clouds

Herbst, E. **111**, 76

## Modification of the Ionization Balance of the Upper Chromosphere Due to XUV Irradiation in Flares

Chambe, G. **113**, 31

## Jet

## On Symmetric Structure in Compact Radio Sources

Phillips, R.B., Mutel, R.L. **106**, 21

## High-resolution Observations of M 87. I. The Morphology of the Jet

Nieto, J.-L., Lelièvre, G. **109**, 95

## Multifrequency High Resolution Observations of the Large Radio Galaxy B2 1321+31

Fanti, R., Lari, C., Parma, P., Bridle, A.H., Ekers, R.D., Fomalont, E.B. **110**, 169

## Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66B, and 3C 129

van Breugel, W. **110**, 225

## Multifrequency Observations of Extended Radio Galaxies V: 3C 31, 3C 33.1, 3C 35, 3C 66B, 3C 129, 3C 130, 3C 223, 3C 310, 3C 390.3 and 4C 48.29

Van Breugel, W., Jägers, W. **112**, 180; **49**, 529

## Nonlinear Shear Instabilities in an Infinite Slab

Nepveu, M. **112**, 223

## Structure of Dynamics of Supersonic Jets

Norman, M.L., Smarr, L., Winkler, K.-H. A., Smith, M.D. **113**, 285

## The Influence of Buoyancy on the Stability of Jets

Achterberg, A. **114**, 233

## Local Coupling of Surface MHD Waves with Kinetic Alfvén Waves in Jets

Bodo, G., Ferrari, A. **114**, 394

## Jupiter, see also Planets

## Arc Structures in the Jovian Decametric Emission Observed from the Earth and from Voyager

Barrow, C.H., Lecacheux, A., Leblanc, Y. **106**, 94

## New Constants for the Sampson-Lieske Theory of the Galilean Satellites of Jupiter

Arlot, J.-E. **107**, 305

## Motion of the Jovian Commensurability Resonances and the Character of the Celestial Mechanics in the Asteroid Zone: Implications for Kinematics and Structure

Torbett, M., Smoluchowski, R. **110**, 43

## Results of the PHEMU79 Observation Campaign of Mutual Phenomena of the Galilean Satellites of Jupiter in 1979 (Text in French)

Arlot, J.-E., Bernard, A., Bouchet, P., Dagouillon, J., Dourneau, G., Figer, A., Helmer, G., Lecacheux, J., Merlin, Ph., Meyer, C., Mianes, P., Morando, B., Naves, D., Rousseau, J., Soulié, G., Terzan, A., Thuillot, W., Vapillon, L., Wlérick, G. **111**, 151

## Observations of Jupiter with the Astrolabe of the CERGA Observatory (January 1978 - May 1979) (Text in French)

Vigouroux, G., Delmas, C., Guallino, G., Mignard, F., Pham-Van, J. **111**, 211; **49**, 107

## A Narrow-band Splitting at the Jovian Decametric Cutoff Frequency

Leblanc, Y., Rubio, M. **111**, 284

## Improvement of the Theories of Jupiter and Saturn by Harmonic Analysis (in French)

Simon, J.L., Francou, G. **114**, 125

## Kelvin-Helmholtz-Instability, see Instability

## Kinematics, see Stellar Dynamics and Kinematics

**Late Type Stars**, see also Barium Stars, Carbon Stars, M Stars, S Stars

Differential Rotation, Magnetic Activity and X-ray Emission of Late Type Giants

*Belvedere, G., Chiuderi, C., Paternò, L.* **105**, 133

Spectra of the Red (2,0) CN Band in 31 G and K Giant Stars

*Kjaergaard, P., Walker, G.A.H., Yang, S.* **106**, 180; **46**, 375

New Infrared Counterparts of Southern Type II OH Maser Sources

*Epchtein, N., Nguyen-Quang-Rieu* **107**, 229

On the Widths of the Ca II K Emission in Late-type Stars

*Severino, G.* **109**, 90

Magnetic Structure in Cool Stars. V. Chromospheric and Transition-region Emission from Giants

*Oranje, B.J., Zwaan, C., Middelkoop, F.* **110**, 30

Discoveries on Southern, Red-sensitive Objective-prism Plates. IV. Extension to Higher Latitudes

*MacConnell, D.J.* **110**, 181; **48**, 355

Monte Carlo Study of Highly Polarized Cool Stars

*Daniel, J.-Y.* **111**, 58

Molecules in Red-giant Stars. I. Column Densities in Models for K and M Stars

*Johnson, H.R., Sawal, A.J.* **111**, 210; **49**, 77

Terrestrial O<sub>2</sub> Lines Used as Wavelength References: Comparison of Measurements and Model Computations

*Balthasar, H., Thiele, U., Wöhl, H.* **114**, 357

The Angular Diameter of Betelgeuse

*Balega, Y., Blazit, A., Bonneau, D., Koechlin, L., Foy, R., Labeyrie, A.* **115**, 253

## Latitude Observations

Danjon Astrolabe Observations at Rio de Janeiro: Time and Latitude

*Andrei, A.H., d'Ávila, V.A., Penna, J.L., Queiroz, M.* **110**, 183; **48**, 485

A New Method of Determination of the Pole Motion in a Uniform System

*Takagi, S.* **112**, 11

Time and Latitude Results of Observations Made at Merate Observatory with the Astrolabe for the Year 1981

*Buffoni, L., Carta, F., Chlistovsky, F., Manara, A., Mazzoleni, F.* **112**, 179; **49**, 509

Effect of Different Sources of Variation of Latitude Data on Meridian Circle Catalogues

*Rafferty, T.J.* **114**, 420; **50**, 27

Results of Observations Made in Paris with the Astrolabe (Text in French)

*Chollet, F., Débarbat, S., Hascœt, J.C., Lam, S.K., Texier, P., Tomas, M.* **115**, 217; **50**, 195

## Line Blanketing

On the "Just Overlapping Line Approximation" for Molecular Absorption

*Zeidler-K.T., E.-M., Koester, D.* **113**, 173

## Line Broadening

On Solar Hydrogen Lines in the Far-infrared and Submillimeter Spectrum

*Hoang-Binh, D.* **112**, L3

On the Variation of Stark Line Widths Within a Supermultiplet

*Dimitrijević, M.S.* **112**, 251

Experimental Stark Broadening Data of Si II and Si III Lines

*Kusch, H.J., Schröder, K.* **116**, 255

## Line Formation, see also Equivalent Widths

Hydrogen Line Spectrum in Quasars. II. A Critical Discussion of Model Calculations for the Broad Line Region

*Collin-Souffrin, S., Dumont, S., Tully, J.* **106**, 362

On the Possibility of Observing Iron Line Emission from the Surface of Magnetized Neutron Stars

*Yahel, R.Z.* **109**, 1

Angle-averaged Redistribution Function in the Laboratory Frame

*Seitz, M., Baschek, B., Wehrse, R.* **109**, 10

On the Widths of the Ca II K Emission in Late-type Stars

*Severino, G.* **109**, 90

Spectral Line Formation in YY Orionis Envelopes: A Multi-level Hydrogen Atom

*Bastian, U.* **109**, 245

Non-LTE Resonance Line Polarization with Partial Redistribution Effects

*Rees, D.E., Saliba, G.J.* **115**, 1

Empirical NLTE Analyses of Solar Spectral Lines. III. Iron Lines Versus LTE Models of the Photosphere

*Rutten, R.J., Kostik, R.I.* **115**, 104

A Study of Ultraviolet Spectra of  $\zeta$  Aur/VV Cep Systems. I. Resonance Line Formation

*Hempe, K.* **115**, 133

## Line Identification, see also Atomic Data

The Spectra of Late-type Dwarfs and Sub-dwarfs in the Near Ultraviolet. I. Line Identifications

*Beckman, J.E., Crivellari, L., Selvelli, P.L.* **106**, 380; **47**, 295

## Line Profiles

The Geometry of the Seyfert Nucleus in NGC 4151 Revisited. I. Cloudy Structure from the [O III] Line Profile Analysis

*Pelat, D., Alloin, D.* **105**, 335

Absorption Line Symmetries for Two HgMn Stars

*Rice, J.B., Wehlau, W.H.* **106**, 7

On the Ionization and Velocity Structure of Expanding Circumstellar Envelopes

*Drechsel, H., Rahe, J.* **106**, 70

Profiles of [O III] Lines in QSOs

*Miley, G.K., Heckman, T.M.* **106**, 163

A Model for Constructing Artificial Integrated Spectral Lines and Their Fourier Transform Properties Relevant to the Search for Differential Rotation of Stars

*Garcia-Alegre, M.C., Vázquez, M., Wöhl, H.* **106**, 261

An Atlas of Theoretical Stokes Profiles for Solar Disk Observations

*Arena, P., Landi Degl'Innocenti, E.* **108**, 416; **48**, 81

Study of H<sub>2</sub> Profile in 72 Be Stars

*Andrillat, Y., Fehrenbach, Ch.* **108**, 416; **48**, 93

Absolute Measurement of the Bisector of the 6301.5091 Fe I Line in the Solar Spectrum

*Cavallini, F., Ceppatelli, G., Righini, A.* **109**, 233

Spectral Line Formation in YY Orionis Envelopes: A Multi-level Hydrogen Atom

*Bastian, U.* **109**, 245

Solar Emission Lines Produced in the Wake of a Shock Wave. II. Line Profiles

*Flower, D.R., Pineau des Forêts, G.* **110**, 163



Velocity Fields and Spectral Line Asymmetries: A Linearized Analytical Approach to the Theory of the Line Bisector in a Milne-Eddington Atmosphere

Buonaura, B., Caccin, B. **111**, 113

High Resolution Observations of the H<sub>2</sub> Profile from  $\eta$  Car

Melnick, J., Ruiz, M.T., Maza, J. **111**, 375

On the Balmer Emission Lines of the Herbig Be Star HD 200775

Köppen, J., Finkenzeller, U., Mundt, R., Beltrametti, M. **112**, 174

Line Profile Fluctuations in a Turbulent Atmosphere

Loucif, M.L., Magnan, C. **112**, 287

Spectral Line Transfer Effects in Lambda-dameter Measurements of Solar Short-period Oscillations

Deubner, F.-L., Durrant, C.J., Kaltenbacher, J. **114**, 85

Cyclotron Emission in Strongly Magnetized Plasmas

Herold, H., Ruder, H., Wunner, G. **115**, 90

A Note on Garcia-Alegre et al.'s Article, "A Model for Constructing Artificial Integrated Spectral Lines and Their Fourier Transform Properties Relevant to the Search for Differential Rotation of Stars"

Bruning, D.H. **115**, 203

Asymmetric Emission-line Regions with Out-flowing Mass in QSOs and the  $Z_{ab} > Z_{em}$  Systems

Goldman, I., Bahcall, J.N. **115**, 242

The Asymmetry of Photospheric Absorption Lines. I. An Analysis of Mean Solar Line Profiles

Kaisig, M., Durrant, C.J. **116**, 332

**Lithium Depletion**, see abundances, stellar

**Local Group**, see also M 31, Magellanic Clouds

Wolf-Rayet Stars in Extragalactic H II Regions: Discovery of a Peculiar WR in IC 1613/ 3

D'Odorico, S., Rosa, M. **105**, 410

On the Peculiar Motion of the Local Group as Revealed by the  $B-V$  vs.  $HM$  Relation for ScI Galaxies

Teerikorpi, P. **109**, 314

**Long-Period Variables**, see Mira Stars

**Luminosity Calibration, ... Function**

Radio and Optical Observations of 9 Nearby Abell Clusters: A262, A347, A569, A576, A779, A1213, A1228, A2162, A2666

Fanti, C., Fanti, R., Feretti, L., Ficarra, A., Gioia, I.M., Giovannini, G., Gregorini, L., Mantovani, F., Marano, B., Padrielli, L. **105**, 200

Membership, Basic Parameters and Luminosity Function of the Southern Open Cluster NGC 2547

Clariá, J.J. **106**, 380; **47**, 323

Optical Identification/Flux Density Relationship for Radio Galaxies

Swarup, G., Subrahmanya, C.R., Venkatakrishna, K.L. **107**, 190

Luminosity Functions of Star Clusters in the Small Magellanic Clouds

Kontizas, M., Kontizas, E. **108**, 344

The Log N-log S Curve of Gamma-ray Bursts Detected by the SIGNE Experiments

Barat, C., Chambon, G., Hurley, K., Niel, M., Vedrenne, G. **109**, L9

The Initial Mass Function for Young Open Clusters

Tarrab, I. **109**, 285

RGU-photometry of the Field Vela II

Becker, W., Marsoglu, A. **112**, 133

The Mass Function of Blue Stars, the Production Rate of Lycophotons, and the Rate of Star Formation in M 33

Berkhuijsen, E.M. **112**, 369

Evolutionary Luminosity Functions of Extragalactic Sources Driven by Gravitational Power

Cavaliere, A., Giallongo, E., Messina, A., Vagnetti, F. **114**, L1

RGU-three Colour Photometry of a Field near NGC 6171 (Text in German)

Wiedemann, D. **114**, 421; **50**, 93

On the Difference Between the Initial Mass Function of Single Stars and of Primaries of Binaries

Vanbeveren, D. **115**, 65

**Lunar ...**, see Moon

**Lunar Occultation**, see Occultation

**M 31**, see Galaxies, individual

**Magellanic Clouds**, see also Local Group

A Carbon Star in the Globular Cluster Lindsay 102

Danks, A.C. **106**, 4

A Study of Ultraviolet Spectroscopic and Light Variations in the X-ray Binaries LMC X-4 and SMC X-1

van der Klis, M., Hammerschlag-Hensberge, G., Bonnet-Bidaud, J.M., Ilovaisky, S.A., Mouchet, M., Glencross, W.M., Willis, A.J., van Paradijs, J., Zuiderwijk, E.J., Chevalier, C. **106**, 339

The Gas to Dust Ratio and the Near-infrared Extinction Law in the Large Magellanic Cloud

Koornneef, J. **107**, 247

VBLUW Photometry of Magellanic Cloud Super- and Hypergiants, Made in 1977 up to 1979

van Genderen, A.M., van Leeuwen, F., Brand, J. **107**, 416; **47**, 591

Vibrational Instability of a 3000  $M_{\odot}$  Star and the R 136a Problem

Ledoux, P., Noels, A., Boury, A. **108**, 49

Comparisons of the HR Diagrams of the Youngest Clusters in the Galaxy, the LMC and SMC. Evidence for a Large MS Widening

Meylan, G., Maeder, A. **108**, 148

Luminosity Functions of Star Clusters in the Small Magellanic Clouds

Kontizas, M., Kontizas, E. **108**, 344

Identification of Stars in the Direction of the Large Magellanic Cloud (2nd Serie)

Fehrenbach, C., Duflot, M. **110**, 415; **48**, 1

A 21 cm Hydrogen Line Survey of the Small Magellanic Cloud

Bajaja, E., Loiseau, N. **108**, 415; **48**, 71

Equivalent Width Measurements in Galactic Supergiant and in Small Magellanic Cloud Star Spectra

Dubois, P. **110**, 182; **48**, 375

Radial Velocities from Objective-prism Plates in the Direction of the Large Magellanic Cloud (Text in French)

Fehrenbach, Ch., Duflot, M. **110**, 182; **48**, 409

Dynamics of the Supergiant Shell LMC 2 in the Large Magellanic Cloud

Caulet, A., Deharveng, L., Georgelin, Y.M., Georgelin, Y.P. **110**, 185

High Dispersion Spectroscopy of the LMC Star S Doradus During Maximum Light

Stahl, O., Wolf, B. **110**, 272

On the Radial Colour Variation in Nine Young Populous Clusters in the LMC

Meylan, G. **110**, 348

- Excitation and Extinction in the LMC HII Region N159A and Discovery of a Highly Excited "Blob" in Its Vicinity  
*Heydari-Malayeri, M., Testor, G.* **111**, L11
- Absolute Photometry of Supernova Remnants and Emission Nebulae in the Galaxy and the Magellanic Clouds  
*Greve, A., van Genderen, A.M., Dennefeld, M., Danziger, I.J.* **111**, 171
- Observed Radii and Structural Parameters of Clusters in the SMC  
*Kontizas, M., Danzis, E., Kontizas, E.* **111**, 209; **49**, 1
- Further VBLUW Photometry of the S Doradus Type Variables S Dor and HDE 269006 in the LMC and a Discussion on Their Temperatures  
*van Genderen, A.M.* **112**, 61
- The Cepheid Period-Luminosity-Colour Relation: A Most Unsuitable Distance Indicator  
*Stift, M.J.* **112**, 149
- R 136: WN or O Spectral Characteristics?  
*Vreux, J.M., Dennefeld, M., Andritat, Y.* **113**, L10
- Sk 143: An SMC Star with a Galactic-type Ultraviolet Interstellar Extinction  
*Lequeux, J., Maurice, E., Prévot-Burnichon, M.-L., Prévot, L., Rocca-Volmerange, B.* **113**, L15
- The Bok and Tift UB<sub>V</sub> Sequence in the Large Magellanic Cloud: Revised and Extended  
*Alcaino, G., Liller, W.* **114**, 213
- Photoelectric UB<sub>V</sub>-photometry in the Large Magellanic Cloud (Text in German)  
*Issersted, J.* **114**, 419; **50**, 7
- Two Photoelectric UB<sub>V</sub>I Sequences in the Bar of the Small Magellanic Cloud  
*Vigneau, J., Azzopardi, M.* **114**, 422; **50**, 119
- Kinematics of Ring-shaped Nebulae in the LMC. II. The Radial Velocity Field of N 185  
*Rosado, M., Georgelin, Y.M., Georgelin, Y.P., Laval, A., Monnet, G.* **115**, 61
- The Two-colour Diagram of Luminous Stars in the Magellanic Clouds (Text in German)  
*Issersted, J.* **115**, 97
- Fine Structure in High Velocity Clouds Near the South Celestial Pole  
*Morris, R.* **115**, 249
- Magnetic Field, ... Flux**, see also Dynamo Theory, Hydrodynamics, Magnetohydrodynamics, Peculiar A Stars, Solar Activity
- The Structure of the Solar Magnetic Field Below the Photosphere. I. Adiabatic Flux Tube Models  
*van Ballegoijen, A.A.* **106**, 43
- Stability of Toroidal Flux Tubes in Stars  
*Spruit, H.C., van Ballegoijen, A.A.* **106**, 58
- The Magnetic Field in M 31  
*Beck, R.* **106**, 121
- Changing Orientation of Dipole and Spin Axes in Binary X-ray Pulsars  
*Wang, Y.-M., Robnik, M.* **107**, 222
- Determination of Physical Parameters in the Radio Source 5C 4.81  
*Roland, J.* **107**, 267
- The Fokker-Planck Equation for the Radiation Transfer in a Strongly Magnetized Plasma  
*Bonazzola, S.* **108**, 19
- An Alternative Derivation of the Line Transfer Equation of an Arbitrarily Polarized Radiation in the Presence of a Magnetic Field, in non-LTE  
*Mathys, G.* **108**, 213
- Onset of Rapid Mass Loss in Cool Giant Stars: Magnetic Field Effects  
*Mullan, D.J.* **108**, 279
- On the Generation of Magnetic Fields in Late-type Stars: A Local Time-dependent Dynamo Model  
*Robinson, R.D., Durney, B.R.* **108**, 322
- An Atlas of Theoretical Stokes Profiles for Solar Disk Observations  
*Arena, P., Landi Degl'Innocenti, E.* **108**, 416; **48**, 81
- On the Possibility of Observing Iron Line Emission from the Surface of Magnetized Neutron Stars  
*Yahel, R.Z.* **109**, 1
- Unstable Poloidal Magnetic Fields in Stars  
*Van Assche, W., Tayler, R.J., Goossens, M.* **109**, 166
- On the Origin of Planetary Nebulae  
*Nussbaumer, H.* **110**, L1
- Expected Broadband Linear Polarization from Cool Stars with Magnetic Structures  
*Landi Degl'Innocenti, E.* **110**, 25
- Preinjection of Cosmic Rays and Magnetic Chemically Peculiar Stars  
*Havnes, O.* **110**, 203
- Diagnostic of Coronal Magnetic Fields from Microwave Polarization Reversal  
*Bandiera, R.* **112**, 52
- Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. V. The Theory of Magneto-Acoustic-Gravity Oscillations  
*Leroy, B., Schwartz, S.J.* **112**, 84
- Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. VI. Application of Magneto-Acoustic-Gravity Mode Theory to the Solar Atmosphere  
*Schwartz, S.J., Leroy, B.* **112**, 93
- Broadband Linear Polarization from Magnetized Stellar Atmospheres. Numerical Tables for the Magnetic Intensification Mechanism  
*Landi Degl'Innocenti, E., Calamai, G.* **112**, 395; **49**, 677
- Magnetic Structure in Cool Stars. VI. Ca II H and K Fluxes from Evolved Stars  
*Middelkoop, F.* **113**, 1
- Geometry of Pulsar Beams: Relative Orientations of Rotation Axis, Magnetic Axis and Line of Sight  
*Narayan, R., Vivekanand, M.* **113**, L3
- The Overshoot Layer at the Base of the Solar Convective Zone and the Problem of Magnetic Flux Storage  
*van Ballegoijen, A.A.* **113**, 99
- Erratum: Stability of Toroidal Flux Tubes in Stars  
*Spruit, H.C., van Ballegoijen, A.A.* **113**, 350
- 3D Models for Self-gravitating, Rotating Magnetic Interstellar Clouds  
*Dorfi, E.* **114**, 151
- Magnetic Field in Solar Prominences Measured with a New Spectrally Scanning Magnetograph  
*Kim, I.S., Koutchmy, S., Nikolsky, G.M., Stellmacher, G.* **114**, 347
- Fine Analysis of the Intermediate Helium-star CPD-46°3093  
*Groote, D., Kaufmann, J.P., Lange, A.* **114**, 420; **50**, 77
- Cyclotron Emission in Strongly Magnetized Plasmas  
*Herold, H., Ruder, H., Wunner, G.* **115**, 90

# The Analysis of Fe XIV 5303 Coronal Emission-line Polarization Measurements

Arnaud, J. **116**, 248

## Magnetic Lines

### Blowing up of Two-dimensional Magnetohydrostatic Equilibria by an Increase of Electric Current or Pressure

Heyvaerts, J., Lasry, J.M., Schatzman, M., Witomsky, P. **111**, 104

## Magnetic Stars, see Neutron Stars, Peculiar A Stars

## Magnetohydrodynamics, see also Hydrodynamics

### Alfvénic Fluctuations as Asymptotic States of MHD Turbulence

Grappin, R., Frisch, U., Léorat, J., Pouquet, A. **105**, 6

### Solar Type I Noise Storms and Newly Emerging Magnetic Flux

Spicer, D.S., Benz, A.O., Huba, J.D. **105**, 221

### Unstable Poloidal Magnetic Fields in Stars

Van Assche, W., Tayler, R.J., Goossens, M. **109**, 166

### Blowing up of Two-dimensional Magnetohydrostatic Equilibria by an Increase of Electric Current or Pressure

Heyvaerts, J., Lasry, J.M., Schatzman, M., Witomsky, P. **111**, 104

### The Thermal Stability of Solar Coronal Loops in Hydrostatic Equilibrium

Wragg, M.A., Priest, E.R. **113**, 269

### Coronal Loop Transients in Streamer Configurations

Steinolfson, R.S. **115**, 39

### Coronal Response to a Solar Event in a Corona Evacuated by a Prior Transient

Steinolfson, R.S. **115**, 50

## Magnitudes, see also under the different Objects, especially Clusters, globular and open

## Main-Sequence Stars

### Theoretical Models of Homogeneous Chromospheres for Main Sequence Stars

Musielak, Z. **105**, 23

### Magnetic Structure in Cool Stars. IV. Rotation and Ca II H and K Emission of Main-sequence Stars

Middelkoop, F. **107**, 31

### Comparisons of the HR Diagrams of the Youngest Clusters in the Galaxy, the LMC and SMC. Evidence for a Large MS Widening

Meylan, G., Maeder, A. **108**, 148

### The Combined Effect of Mass Loss and Overshooting. II. The Evolution of $10 M_{\odot}$ to $30 M_{\odot}$ Stars During Core Hydrogen Burning

Doom, C. **116**, 308

## Manganese Stars, see Peculiar A Stars

## Markarian Galaxies, see also Seyfert Galaxies

## Mars, see also Planets

### Observations of Mars with the Astrolabe of the CERGA Observatory (February 1980 – May 1980) (Text in French)

Pham-Van, J., Dugonon, G., Granès, P., Mignard, F., Vigouroux, G. **111**, 211; **49**, 105

### Surface Marking Variations of Selected Areas on Mars

de Mottoni y Palacios, G., Dollfus, A. **116**, 323

## Maser, see also OH Sources

### H<sub>2</sub>O Masers – Survey of the Galactic Plane. II

Braz, M.A., Scalise, E. Jr. **107**, 272

### New Infrared Objects Towards Southern Type I OH and H<sub>2</sub>O Masers

Braz, M.A., Epchtein, N. **111**, 91

### NH<sub>3</sub> and H<sub>2</sub>O in the S106 Molecular Cloud

Stutzki, J., Ungerechts, H., Winnewisser, G. **111**, 201

### An Unusual OH Maser Associated With V 645 Cygni

Morris, M., Kazès, I. **111**, 239

### The Importance of Plasma Effects on Electron-cyclotron Maser-emission from Flaring Loops

Sharma, R.R., Vlahos, L., Papadopoulos, K. **112**, 377

### Pumping of H II/OH Masers: IR Line Overlaps and Collisional Excitation by H<sub>2</sub>

Flower, D.R., Guilloteau, S. **114**, 238

### Physical Conditions in H II/OH Maser Regions

Guilloteau, S. **116**, 101

## Mass Exchange, see also Close Binaries, Mass Loss

### Conservative Mass Transfer Calculations for Semidetached Binaries Using Response Functions

Hauschildt, M. **112**, 386

### Mass Transfer in a Low Mass Semidetached Binary, Taking into Consideration Nonequilibrium Effects

Hauschildt, M. **114**, 407

### CI Cyg: The Stage of Case C Mass Transfer

Iijima, T. **116**, 210

## Mass Function, see also Star Formation, Stellar Masses

## Mass Loss, see also Close Binaries, Eclipsing Binaries, Mass Exchange, Stellar Wind

### The Helium to Heavy Element Enrichment Ratio, $\Delta Y/\Delta Z$

Chiosi, C., Matteucci, F. **105**, 140

### Evolutionary Scenarios Leading Massive Stars to WR Stars: Their Mutual Importance; the Role of Mixing

Maeder, A. **105**, 149

### On the Ionization and Velocity Structure of Expanding Circumstellar Envelopes

Drechsel, H., Rahe, J. **106**, 70

### Mass Loss from $\alpha$ Cyg (A2 Ia) Derived from the Profiles of Low Excitation Fe II Lines

Hensberge, H., Lamers, H.J.G.L.M., de Laere, C., Bruhweiler, F.C. **106**, 137

### Wind Acceleration in Early-type Stars: The Momentum Problem and the Terminal Velocity

Panagia, N., Macchetto, F. **106**, 266

### On Hot Star Winds. I. Radiation-driven Winds

Leroy, M., Lafon, J.-P.J. **106**, 345

### On Hot Star Winds. II. Energy Transport – Corona-like Temperature Enhancements

Leroy, M., Lafon, J.-P.J. **106**, 358

### IUE Ultraviolet Spectrophotometry of 15 Galactic Wolf-Rayet Stars

Nussbaumer, H., Schmutz, W., Smith, L.J., Willis, A.J. **106**, 379; **47**, 257

### Mass Loss Rates in the Open Cluster IC 1805

Llorente de Andrés, F., Burki, G., Ruiz del Arbol, J.A. **107**, 43

### Variability and Mass Loss in the Extreme Supergiant $\epsilon^1$ Sco

Burki, G., Heck, A., Bianchi, L., Cassatella, A. **107**, 205

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines

*Reimers, D.* **107**, 292

Period Changes in Detached Close Binary Systems Due to Anisotropic Ejection of Mass

*Van Hamme, W.* **107**, 397

Spectroscopy and Infrared Photometry of Cyg OB 2 Stars: Velocity Law and Mass-loss Rates

*Leitherer, C., Hefele, H., Stahl, O., Wolf, B.* **108**, 102

Analysis of the IUE and Optical Spectra of the Peculiar Be Star HD 87643

*de Freitas Pacheco, J.A., Gilra, D.P., Pottasch, S.R.* **108**, 111

The Spectrum of the WC-O VI Star ST 3 in the Yellow Range

*Thévenin, F., Pitault, A.* **108**, 195

Onset of Rapid Mass Loss in Cool Giant Stars: Magnetic Field Effects

*Mullan, D.J.* **108**, 279

On the Theory of Shock-heated Atmospheres. III. Discussion of the Formalism and Application to Stellar Coronae

*Souffrin, P.* **109**, 205

Mass Loss from the Protoplanetary Nebula

*Horedt, G.P.* **110**, 209

Mass Loss, Linear Polarization Variability, and Duplicity of the Luminous B2 Supergiant HD 80077

*Knoechel, G., Moffat, A.F.J.* **110**, 263

High Dispersion Spectroscopy of the LMC Star S Doradus During Maximum Light

*Stahl, O., Wolf, B.* **110**, 272

Infrared Energy Distribution of Cyg. OB2 No. 12

*Persi, P., Ferrari-Toniolo, M.* **111**, L7

On the Spin Down Episodes of Vela X-1

*Molteni, D., Rapisarda, M., Re, S., Robba, N.R.* **111**, 365

Transformation of Magnetogravitational Waves in the Solar Atmosphere

*Zhugzhda, Y.D., Dzhalilov, N.S.* **112**, 16

AG Car: A Galactic S Dor Variable

*Wolf, B., Stahl, O.* **112**, 111

Possible Correlations of Expansion Velocity with Period and 1  $\mu$ m Intensity Variation in Mira Variables

*Ukita, N.* **112**, 167

Evolution of Low Mass Stars Through Mass Loss: Transition from the Main Sequence to the Degenerate Phase

*D'Antona, F., Mazzitelli, I.* **113**, 303

The Ultimate Fate of Wolf-Rayet Stars as Supernovae

*Maeder, A., Lequeux, J.* **114**, 409

Asymmetric Emission-line Regions with Out-flowing Mass in QSOs and the  $Z_{ab} > Z_{em}$  Systems

*Goldman, I., Bahcall, J.N.* **115**, 242

Has P Cygni Generated a Shock Front Which Emits Nonthermal Radiation?

*Wendker, H.J.* **116**, L1

The Far-UV Spectrum of the Low-excitation Planetary Nebula HD 138403

*Surdej, J., Heck, A.* **116**, 80

Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9°4395 and BD +10°2179

*Hamann, W.-R., Schönberner, D., Heber, U.* **116**, 273

Models for Stellar Coronae: The Effects of Coronal Heating with Long Dissipation Scale Lengths

*Hearn, A.G.* **116**, 296

The Combined Effect of Mass Loss and Overshooting. I. The Evolution of 35  $M_{\odot}$  to 100  $M_{\odot}$  Stars During Core Hydrogen Burning

*Doom, C.* **116**, 303

The Combined Effect of Mass Loss and Overshooting. II. The Evolution of 10  $M_{\odot}$  to 30  $M_{\odot}$  Stars During Core Hydrogen Burning

*Doom, C.* **116**, 308

## Mass Luminosity Relation, Mass Radius Relation

**Massive Stars**, see also Star Formation, Stellar-Evolution

High Dispersion Spectroscopy of the LMC Star S Doradus During Maximum Light

*Stahl, O., Wolf, B.* **110**, 272

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism II: Three New Massive Binaries in the Scorpius OB 1 Association

*Gieseke, F.* **112**, 395; **49**, 673

On the Difference Between the Initial Mass Function of Single Stars and of Primaries of Binaries

*Vanbeveren, D.* **115**, 65

**Metal Abundance, Metallicity**, see also Barium Stars

Metallicity Distribution in the System of Globular Clusters

*Colin, J.* **97**, 33

## Metallic Line Stars

On the Search for Transition Zone Lines in Late A Type Stars

*Crivellari, L., Praderie, F.* **107**, 75

Contribution to the Study of Composite Spectra. II. A, Am, Ap Spectroscopic Binaries (*Text in French*)

*Ginestet, N., Jaschek, M., Carquillat, J.M., Pédoussaut, A.* **107**, 215

AN And: A Detached Eclipsing Binary System with an Am Primary Member

*Giuricin, G., Mardirossian, F., Mezzetti, M.* **114**, 74

## Meteors, Meteoroids, Meteorites, Meteor Streams

Perturbations by Jupiter of the Particles Ejected from Comet Lexell

*Carusi, A., Kresáková, M., Valsecchi, G.B.* **116**, 201

## Minor Planets, see Asteroids

Photoelectric Observations of 44 Nysa During 1981 Opposition

*Piironen, J.O.* **112**, 172

## Mira Stars

The Diameter of Mira

*Bonneau, D., Foy, R., Blazit, A., Labeyrie, A.* **106**, 235

On the Structure of the Outer Layers of Cool Carbon Stars

*Querci, F., Querci, M., Wing, R.F., Cassatella, A., Heck, A.* **111**, 120

Possible Correlations of Expansion Velocity with Period and 1  $\mu$ m Intensity Variation in Mira Variables

*Ukita, N.* **112**, 167

## MK Classification, see Spectral Classification

## mm Radiation, see Millimetre Observations



**Modes, see Oscillations****Molecular Clouds, see Interstellar Clouds, Radio Frequency Lines: Molecular Lines**

The Lick Galaxy Counts, the Local Interstellar Absorption and Molecular Hydrogen

*Strong, A.W., Lebrun, F.* **105**, 159

Far Infrared Survey of Extended Molecular Clouds H II Regions Complexes Along the Galactic Plane

*Gispert, R., Puget, J.L., Serra, G.* **106**, 293

Formaldehyde Emission from DR21(OH)

*Wilson, T.L., Martin-Pintado, J., Gardner, F.F., Henkel, C.* **107**, L10

The State of Ionization in Dense Molecular Clouds

*Guélin, M., Langer, W.D., Wilson, R.W.* **107**, 107

The Gas Dynamics of H II Regions. VI. H II Regions in Collapsing Massive Molecular Clouds

*Yorke, H.W., Bodenheimer, P., Tenorio-Tagle, G.* **108**, 25

Interstellar Grain Explosions: Molecule Cycling Between Gas and Dust

*d'Hendecourt, L.B., Allamandola, L.J., Baas, F., Greenberg, J.M.* **109**, L12

Astronomical Study of the C<sub>3</sub>N and C<sub>4</sub>H Radicals: Hyperfine Interactions and Rho-type Doubling

*Guélin, M., Friberg, P., Mezaoui, A.* **109**, 23

Star Formation in the NH<sub>3</sub> Cloud of the NGC 2071 Region

*Calamai, G., Felli, M., Giardinelli, S.* **109**, 123

The Millimeter Wave Spectrum and Discharge Chemistry of HC<sub>5</sub>N

*Winnewisser, G., Winnewisser, M., Christiansen, J.J.* **109**, 141

Further (<sup>12</sup>C/<sup>13</sup>C) Ratios from Formaldehyde: A Variation with Distance from the Galactic Center

*Henkel, C., Wilson, T.L., Bieging, J.* **109**, 344

Radiative Transfer: Comparison of Finite Difference Equations

*Kalkofen, W., Wehrse, R.* **110**, 18

Ortho-to-Para Ratios in Interstellar Ammonia

*Wilson, T.L., Batrla, W., Pauls, T.A.* **110**, L20

Can Giant Molecular Clouds Form in Spiral Arms?

*Casoli, F., Combes, F.* **110**, 287

The Temperature Dependence of the HCO<sup>+</sup>/DCO<sup>+</sup> Abundance Ratio in Dense Interstellar Clouds

*Herbst, E.* **111**, 76

NH<sub>3</sub> and H<sub>2</sub>O in the S106 Molecular Cloud

*Stutzki, J., Ungerechts, H., Winnewisser, G.* **111**, 201

Ammonia Observations of Cold Cloud Cores

*Ungerechts, H., Walmsley, C.M., Winnewisser, G.* **111**, 339

OH Observations of NH<sub>3</sub> Sources

*Little, L.T., Cesarsky, D.A.* **112**, 49

Near-infrared Sources in the NGC 6334 Molecular Cloud

*Persi, P., Ferrari-Toniolo, M.* **112**, 292

Formaldehyde Absorption Measurements of Selected Galactic Molecular Clouds

*Bieging, J., Wilson, T.L., Downes, D.* **112**, 394; **49**, 607

Extended and Anisotropic High-velocity Gas Flows in the Orion-KL Region

*Olofsson, H., Ellér, J., Hjalmarson, Å., Rydbeck, G.* **113**, L18

The H II Region - Molecular Cloud Complex Sh 2-269: An Optical and Millimeter Wavelength Study

*Heydari-Malayeri, M., Testor, G., Baudry, A., Lafon, G., de la Noë, J.* **113**, 118

The Kinematical Structure of the Bipolar Nebula S 106

*Solf, J., Carsenty, U.* **113**, 142

Formaldehyde Absorption Towards OH Sources

*Forster, J.R., Boland, W.* **114**, 109

3D Models for Self-gravitating, Rotating Magnetic Interstellar Clouds

*Dorfi, E.* **114**, 151

Loss of CO<sup>+</sup> Ions by Reaction with H<sub>2</sub> in OMC-1

*Huntress, W.T., Jr., Prasad, S.S., Kemper, P.R., Cates, R.D., Bowers, M.T.* **114**, 275

Detection of the (8,8) and (9,9) Absorption Lines of Ammonia: The Hot Molecular Cloud Toward Sgr B 2

*Wilson, T.L., Ruf, K., Walmsley, C.M., Martin, R.N., Pauls, T.A., Batrla, W.* **115**, 185

Discrete Sources of Cosmic Gamma Rays

*Li, T.P., Wolfendale, A.W.* **116**, 95

A New Near-infrared Source in the Molecular Cloud Associated with S106

*Hofmann, R.G., Larson, H.P.* **116**, 179

**Molecules, see also Interstellar Clouds, OH Sources, Radio Frequency Lines: Molecular Lines**

A Search for C<sub>2</sub> Features in the Hydrogen-poor Carbon Star HD 182040

*Wallerstein, G.* **105**, 219

Note sur le spectra de la Comète 1980 u

*Huang Chang-Chun* **106**, 179; **46**, 369

Spectra of the Red (2,0) CN Band in 31 G and K Giant Stars

*Kjaergaard, P., Walker, G.A.H., Yang, S.* **106**, 180; **46**, 375

Table of Solar Diatomic Molecular Lines. IV. Spectral Range: 7600-8100

*Boyer, R., Sotirovski, P., Harvey, J.W.* **106**, 181; **47**, 145

Molecular Abundances in IRC + 10216

*Lafont, S., Lucas, R., Omont, A.* **106**, 201

Formaldehyde Emission from DR21(OH)

*Wilson, T.L., Martin-Pintado, J., Gardner, F.F., Henkel, C.* **107**, L10

Classical Rigid-ellipsoid model for Collisions of H<sub>2</sub> with HC<sub>7</sub>N and HC<sub>9</sub>N

*Bhattacharyya, S.S., Dickinson, A.S.* **107**, 26

The State of Ionization in Dense Molecular Clouds

*Guélin, M., Langer, W.D., Wilson, R.W.* **107**, 107

High Sensitivity Molecular Line Observations of IRC + 10216

*Olofsson, H., Johansson, L.E.B., Hjalmarson, Å., Nguyen-Quang-Rieu* **107**, 128

H<sub>2</sub>O Masers - Survey of the Galactic Plane. II

*Braz, M.A., Scalise, E. Jr.* **107**, 272

Infrared Bands of C<sub>2</sub> in the Solar Photospheric Spectrum

*Brault, J.W., Delbouille, L., Grevesse, N., Roland, G., Sawal, A.J., Testerman, L.* **108**, 201

A Model of a Comet Coma with Interstellar Molecules in the Nucleus

*Biermann, L., Giguere, P.T., Huebner, W.F.* **108**, 221

Tentative Identification of CS<sup>+</sup> in Comets

*Singh, P.D.* **108**, 369

Interstellar Grain Explosions: Molecule Cycling Between Gas and Dust

*d'Hendecourt, L.B., Allamandola, L.J., Baas, F., Greenberg, J.M.* **109**, L12

Astronomical Study of the C<sub>3</sub>N and C<sub>4</sub>H Radicals: Hyperfine Interactions and Rho-type Doubling

*Guélin, M., Friberg, P., Mezaoui, A.* **109**, 23

Evaluation of Infrared Line Emission from Constituent Molecules of Cometary Nuclei

*Yamamoto, T.* **109**, 326

## Ortho-to-Para Ratios in Interstellar Ammonia

Wilson, T.L., Batrla, W., Pauls, T.A. **110**, L20

The Temperature Dependence of the  $\text{HCO}^+/\text{DCO}^+$  Abundance Ratio in Dense Interstellar Clouds

Herbst, E. **111**, 76

 $\text{NH}_3$  and  $\text{H}_2\text{O}$  in the S106 Molecular Cloud

Stutzki, J., Ungerechts, H., Winnewisser, G. **111**, 201

## Molecules in Red-giant Stars. I. Column Densities in Models for K and M Stars

Johnson, H.R., Sauval, A.J. **111**, 210; **49**, 77

OH Observations of  $\text{NH}_3$  Sources

Little, L.T., Cesarsky, D.A. **112**, 49

## Formaldehyde Absorption Measurements of Selected Galactic Molecular Clouds

Biegging, J., Wilson, T.L., Downes, D. **112**, 394; **49**, 607

## On the "Just Overlapping Line Approximation" for Molecular Absorption

Zeidler-K.T., E.-M., Koester, D. **113**, 173

## Dynamic Coma Models for Comet Bennet 1970 II

Cucchiari, A., Malaise, D. **114**, 102

## Model Calculations of the Molecular Composition of Interstellar Grain Mantles

Tielens, A.G.G.M., Hagen, W. **114**, 245

Loss of  $\text{CO}^+$  Ions by Reaction with  $\text{H}_2$  in OMC-1

Huntress, W.T., Jr., Prasad, S.S., Kemper, P.R., Cates, R.D., Bowers, M.T. **114**, 275

## On the Spectrum of Comet Bradfield 1980f

Cosmovici, C.B., Barbieri, C., Bonoli, C., Bortoletto, F., Hamzaoglu, E. **114**, 373

## Detection of the (8,8) and (9,9) Absorption Lines of Ammonia: The Hot Molecular Cloud Toward Sgr B2

Wilson, T.L., Ruf, K., Walmsley, C.M., Martin, R.N., Pauls, T.A., Batrla, W. **115**, 185

## Moon

## Orientation of the JPL Ephemerides, DE 200/LE 200, to the Dynamical Equinox of J 2000

Standish, E.M., Jr. **114**, 297

## Relativistic Perturbations of the Moon in ELP 2000

Lestrade, J.F., Chapront-Touze, M. **116**, 75

## Multiple Stars

## Evidence for a Third Component in the U CrB System

Van Gent, R.H. **110**, 183; **48**, 457

## Narrow Band Photometry, see Clusters, open; Galaxies, optical Observations; Photometry

## N-body Problems

## A Comparison of Simulated Galaxy Clustering Models with Observations

Zieba, S., Urbanik, M., Rudnicki, K., Aarseth, S.J. **105**, 21

## Evolution of Rich Clusters of Galaxies

Roos, N., Aarseth, S.J. **114**, 41

## Nearby Stars, see Solar Neighborhood

## Nebulae, see also Crab Nebula, H II Regions, Interstellar Clouds, Orion Nebula, Reflection Nebulae, Supernovae and Supernova Remnants

## Rosette Nebula

## A Continuum Study of Galactic Radio Sources in the Constellation of Monoceros

Graham, D.A., Haslam, C.G.T., Salter, C.J., Wilson, W.E. **109**, 145

## V 645 Cyg

## An Unusual OH Maser Associated With V 645 Cygni

Morris, M., Kazès, I. **111**, 239

## Neptune

## Orbital Elements of Nereid from New Observations

Veillet, C. **112**, 277

## Network, see Solar Chromosphere

## Neutrinos

## The Solar Neutrino Problem

Taylor, J.B., Connor, J.W. **107**, L1

## Neutrino Cyclotron Radiation from Superfluid Vortexes in Neutron Stars: A New Mechanism for Pulsar Spin Down

Qiu-He Peng, Ke-Liang Huang, Jie-Hao Huang **107**, 258

## Detection of Solar and Cosmic Neutrinos by Coherent Scattering

Opher, R. **108**, 1

## Massive Neutrino Halos in an Expanding Universe

Fabbri, R., Jantzen, R.T., Ruffini, R. **114**, 219

## Galactic Neutrino Models

Rephaeli, Y. **114**, 405

## Neutron Stars, see also Pulsars

## Some Remarks on the Spectra of X-ray Bursts

van Paradijs, J. **107**, 51

## Changing Orientation of Dipole and Spin Axes in Binary X-ray Pulsars

Wang, Y.-M., Robnik, M. **107**, 222

## Neutrino Cyclotron Radiation from Superfluid Vortexes in Neutron Stars: A New Mechanism for Pulsar Spin Down

Qiu-He Peng, Ke-Liang Huang, Jie-Hao Huang **107**, 258

## The Fokker-Planck Equation for the Radiation Transfer in a Strongly Magnetized Plasma

Bonazzola, S. **108**, 19

## Some Constraints on the Evolutionary History of the Binary Pulsar PSR 1913+16

Srinivasan, G., van den Heuvel, E.P.J. **108**, 143

## On the Possibility of Observing Iron Line Emission from the Surface of Magnetized Neutron Stars

Yahel, R.Z. **109**, 1

## The Anomalous Braking Index of the Crab Pulsar: A Plasma Inertial Effect

Heintzmann, H., Schrüfer, E. **111**, L4

## Hydrogen-Helium Flashes on Accreting Neutron Stars as a Possible Origin of Gamma-ray Bursts

Hameury, J.M., Bonazzola, S., Heyvaerts, J., Ventura, J. **111**, 242

## Thermal X-ray Emission from Isolated Older Pulsars: A New Heating Mechanism

Huang, J.-H., Lingelfelter, R.E., Peng, Q.-H., Huang, K.-L. **113**, 9

## Plasma-magnetospheric Interaction in X-ray Sources: An Analysis of the Linear Kelvin-Helmholtz Instability

Wang, Y.-M., Welter, G.L. **113**, 113

## Annual Subject Index

## Cyclotron Emission in Strongly Magnetized Plasmas

*Herold, H., Ruder, H., Wunner, G.* **115**, 90

## Nuclear Forces and the Properties of Matter at High Temperature and Density

*Rayet, M., Arnould, M., Tondeur, F., Paulus, G.* **116**, 183

## North Polar Spur, see Galactic Structure

## Novae and Nova-like Variables, see also Dwarf Novae

## The Old-nova GK Per. II. Optical Outbursts

*Bianchini, A., Sabbadin, F., Hamzaoglu, E.* **106**, 176

## Spectrophotometry of Nova Coronae Austrinae 1981

*Brosch, N.* **107**, 300

## A Photometric and Polarimetric Investigation of the Old Nova RR Pictoris

*Haefner, R., Metz, K.* **109**, 171

## An Atlas of Southern and Equatorial Dwarf Novae

*Vogt, N., Bateson, F.M.* **110**, 182; **48**, 383

## Diffusion of Electrons in Radio Galaxies

*Valtaoja, E.* **111**, 213

## Forbidden Emission Lines of Fe VII

*Nussbaumer, H., Storey, P.J.* **113**, 21

## IUE Observations of Dwarf Novae During Active Phases

*Klare, G., Krautter, J., Wolf, B., Stahl, O., Vogt, N., Wargau, W., Rahe, J.* **113**, 76

## The UV Spectrum of the Old Nova HR Del at Different Orbital Phases

*Friedjung, M., Andriolat, Y., Puget, P.* **114**, 351

## Nuclear Bulge, see galactic Nucleus, M 31

## Nuclear Reactions, ... Synthesis

Fast Neutron Capture on  $^{180}\text{Hf}$  and  $^{184}\text{W}$  and the Solar Hafnium and Tungsten Abundance

*Beer, H., Käppeler, F., Wisshak, K.* **105**, 270

## The Symbiotic Star CI Cygni: S-process Episode or Accretion Event?

*Kenyon, S.J., Webbink, R.F., Gallagher, J.S., Truran, J.W.* **106**, 109

## Carbon, Nitrogen and Oxygen Abundances in G8-K3 Giant Stars

*Kjærgaard, P., Gustafsson, B., Walker, G.A.H., Hultqvist, L.* **115**, 145

## The Galactic Abundance Gradient from Supernova Remnant Observations

*Binette, L., Dopita, M.A., D'Odorico, S., Benvenuti, P.* **115**, 315

## Nuclear Forces and the Properties of Matter at High Temperature and Density

*Rayet, M., Arnould, M., Tondeur, F., Paulus, G.* **116**, 183

## Nuclei of Galaxies, see also Active Galaxies, Galaxies

## The Geometry of the Seyfert Nucleus in NGC 4151 Revisited. I. Cloudy Structure from the [O III] Line Profile Analysis

*Pelat, D., Alloin, D.* **105**, 335

## Structure in the Universe from One Massive Neutrino?

*Klinkhamer, F.R.* **107**, 235

## Mid-infrared Observations of Seyfert 1 and Narrow-line X-ray Galaxies

*Glass, I.S., Moorwood, A.F.M., Eichendorf, W.* **107**, 276

## The Optical Spectrum of the Radio Galaxy PKS 2152-69

*Marenbach, G., Appenzeller, I.* **108**, 95

## Optical Structure of the Nucleus of M 33

*Nieto, J.-L., Aurière, M.* **108**, 334

## High-resolution Observations of M 87. I. The Morphology of the Jet

*Nieto, J.-L., Lelièvre, G.* **109**, 95

## Non-thermal Emission from Relativistic Accretion Disks: A Simple Model for Axisymmetric Inhomogeneous Sources

*Pineault, S.* **109**, 294

## The Radio Structure of the Nuclear Region of NGC 1365

*Sandqvist, A., Jörsäter, S., Lindblad, P.O.* **110**, 336

## Dissipative Evolution of Collisionless Stellar Systems. I. Cooling and Heating of a Stellar System by Binary Stars

*Ozernoy, L.M., Dokuchaev, V.I.* **111**, 1

## Dissipative Evolution of Collisionless Stellar Systems. II. Influence of Binaries on the Evolution of Globular Clusters and Galactic Nuclei

*Dokuchaev, V.I., Ozernoy, L.M.* **111**, 16

## Are All Galactic Nuclear Regions Sodium Rich?

*Véron-Cetty, M.P., Véron, P., Tarengi, M.* **113**, 46

## X-rays from a Peculiar Nucleus Galaxy NGC 2196

*Agrawal, P.C., Singh, K.P.* **113**, 73

## Temperatures and Scales of Giant Cloud Complexes in the Spiral Galaxy IC 342

*Ho, P.T.P., Martin, R.N., Ruf, K.* **113**, 155

## The Distribution of Stars Around a Black Hole: Numerical Solution of the Kinetic Equation with Collisions

*Bisnovatyi-Kogan, G.S., Churayev, R.S., Kolosov, B.I.* **113**, 179

## VLBI Observations of the Core Sources of a Sample of Spiral Galaxies

*Hummel, E., Fanti, C., Parma, P., Schilizzi, R.T.* **114**, 400

## Infrared Emission and Star Formation in NGC 5253

*Moorwood, A.F.M., Glass, I.S.* **115**, 84

## O Stars, see Early Type Stars

## LB 3459 - An O-type Subdwarf Eclipsing Binary System. Non-LTE Analysis of the Primary

*Kudritzki, R.P., Simon, K.P., Lynas-Gray, A.E., Kilkeny, D., Hill, P.W.* **106**, 254

## The Schweizer-Middleditch Star: Not a Stellar Remnant of SN1006

*Savedoff, M.P., Van Horn, H.M.* **107**, L3

## The O Type Subdwarf ROB 162 in the Globular Cluster NGC 6397

*Caloi, V., Castellani, V., Panagia, N.* **107**, 145

## Nitrogen Anomalies in O-type Stars: A New Spectroscopic Criterion

*Bisacchi, G.F., López, J.A., Firmani, C.* **107**, 252

## Non-LTE Analysis of Subluminous O-Stars. II. The Hydrogen-deficient Subdwarf O-Star HD 127493

*Simon, K.P.* **107**, 313

## A Catalogue of Model HII Regions

*Stasinska, G.* **110**, 180; **48**, 299

## R 136: WN or O Spectral Characteristics?

*Vreux, J.M., Dennefeld, M., Andriolat, Y.* **113**, L10

## The Kinematical Structure of the Bipolar Nebula S 106

*Solf, J., Carsenty, U.* **113**, 142

## Models for Stellar Coronae: The Effects of Coronal Heating with Long Dissipation Scale Lengths

*Hearn, A.G.* **116**, 296

## OB Associations, see Associations

## Observational Methods, see also Data Analysis, Speckle Interferometry

**Occultations**

Results of the PHEMU79 Observation Campaign of Mutual Phenomena of the Galilean Satellites of Jupiter in 1979 (Text in French)

*Arlot, J.-E., Bernard, A., Bouchet, P., Daguillon, J., Dourneau, G., Figer, A., Helmer, G., Lecacheux, J., Merlin, Ph., Meyer, C., Mianes, P., Morando, B., Naves, D., Rousseau, J., Soulié, G., Terzan, A., Thuillot, W., Vapillon, L., Wlérick, G.* **111**, 151

**OH Sources**, see also Maser, Radio Frequency Lines: Molecular Lines

New Infrared Counterparts of Southern Type II OH Maser Sources

*Epchtein, N., Nguyen-Quang-Rieu* **107**, 229

OH Observations of NH<sub>3</sub> Sources

*Little, L.T., Cesarsky, D.A.* **112**, 49

Pumping of H II/OH Masers: IR Line Overlaps and Collisional Excitation by H<sub>2</sub>

*Flower, D.R., Guilloteau, S.* **114**, 238

Infrared Observations of OH/IR Stars

*Willems, F., de Jong, T.* **115**, 213

Physical Conditions in H II/OH Maser Regions

*Guilloteau, S.* **116**, 101

**Opacities**

Radiation Transfer in Stellar Interiors

*Opher, R.* **109**, 191

**Open Clusters**, see Clusters, open

**Optical Identifications**

Optical Identification of the Radio Source 0104-408

*Walter, H.G., West, R.M.* **111**, 357

**Orbital Determination**, see Celestial Mechanics

Halley's Comet: Energy and Perturbations

*Buffoni, L., Manara, A., Scardia, M.* **108**, 141

**Origin of Matter**, see Nuclear Reactions,

**Orion Nebula**

The Origin of the Infrared [C I] Emission: H II or H I Regions?

*Cesarsky, D.A.* **113**, L7

Extended and Anisotropic High-velocity Gas Flows in the Orion-KL Region

*Olofsson, H., Elländer, J., Hjalmarson, Å., Rydbeck, G.* **113**, L18

**Oscillations**, see also Pulsations

On the Radius Determination of the Variable F-type Supergiant BL Tel(F)

*van Genderen, A.M.* **105**, 250

On the Modal Structure of the Solar Oscillations

*Stein, R.F.* **105**, 417

On the Linear Adiabatic Oscillations of a Uniformly and Synchronously Rotating Component of a Binary

*Martens, L., Smeyers, P.* **106**, 317

Forced Oscillations in Binary Systems. Toroidal Modes

*Rocca, A.* **111**, 252

Non-linear Stellar Oscillations. Two-Mode Interactions

*Perdang, J., Blacher, S.* **112**, 35

The Effect of Non-adiabatic Layers on the Vibrational Behaviour of Stars

*Buchler, J.R., Regev, O.* **114**, 188

Frequency Analyses of Light and Radial Velocity Observations of  $\alpha$  Lup

*Lampens, P., Goossens, M.* **115**, 413

**Oscillator Strength**, see Transition Probabilities

**P Cygni Stars, P Cygni Profiles**

High Resolution Observations of the H<sub>1</sub> Profile from  $\eta$  Car

*Melnick, J., Ruiz, M.T., Maza, J.* **111**, 375

**Pairs of Galaxies**, see Double Galaxies

**Parallaxes**, see also Trigonometric Parallaxes

The Sun Among the Stars. V. A Second Search for Solar Spectral Analogs. The Hyades' Distance

*Hardorp, J.* **105**, 120

Anomalous Motions of H I Clouds

*Shaver, P.A., Radhakrishnan, V., Anantharamaiah, K.R., Re-tallack, D.S., Wamsteker, W., Danks, A.C.* **106**, 105

The Absolute Magnitudes of G 5-M 3 Stars near the Giant Branch

*Egret, D., Keenan, P.C., Heck, A.* **106**, 115

An H I Absorption Determination of the Distance of W 31

*Kalberla, P.M.K., Goss, W.M., Wilson, T.L.* **106**, 167

The Distance to the Planetary Nebula NGC 7027

*Pottasch, S.R., Goss, W.M., Arnal, E.M., Gathier, R.* **106**, 229

On the Distance to the Giant Galactic H II Region NGC 3603

*Melnick, J., Grosbøl, P.* **107**, 23

Photometric Parallaxes of Nearby Main-Sequence Stars with Annual Proper Motion of 0.7 or More Derived from Eggen's B, V and R, I Data

*Gliese, W.* **107**, 413; **47**, 471

Models of Stellar Evolution and Their Use in Calibrating Distances and Element Abundances of Stars

*Gehren, T.* **109**, 187

Westerbork and VLA Observations of G 127.1 + 0.5

*Pauls, T., van Gorkom, J.H., Goss, W.M., Shaver, P.A., Dickey, J.M., Kulkarni, S.* **112**, 120

The Cepheid Period-Luminosity-Colour Relation: A Most Unsuitable Distance Indicator

*Stift, M.J.* **112**, 149

**Peculiar A stars**

Absorption Line Symmetries for Two HgMn Stars

*Rice, J.B., Wehlau, W.H.* **106**, 7

On the Detection of Abundance Stratifications in Peculiar Stars Through the Curve of Growth Method

*Alecian, G.* **107**, 61

Absolute Transition Probabilities in the Spectra of Eu I and Eu II. II. Line Intensity Measurements

*Karner, C., Meyer, G., Träger, F., zu Putlitz, G.* **107**, 161

Contribution to the Study of Composite Spectra. II. A, Am, Ap Spectroscopic Binaries (Text in French)

*Ginestet, N., Jaschek, M., Carquillat, J.M., Pédoussaut, A.* **107**, 215

Classification Properties of the Vilnius-Geneva Photometric System. II. Stars with Peculiar Chemical Composition

*North, P., Hauck, B., Straižys, V.* **108**, 373

A Search for Ap Stars in the Scorpio-Centaurus Association: Additional Evidence for a Slow Metal Enrichment

*Borra, E.F., Joncas, G., Wizinowich, P.* **111**, 117



Spectral Variations of Two Cool Ap Stars: HD 25354 and HD 152107

*Floquet, M.* **112**, 299

Spectrophotometry of Peculiar B and A Stars. XII. HD 10783, 56 Tauri, HD 43819, 53 Aurigae, 49 Camelopardalis, HD 64486, HD 147550, HD 184905 and HD 192913

*Adelman, S.J.* **112**, 394; **49**, 663

Photometric Properties of Ap Stars in the Geneva System

*Hauck, B., North, P.* **114**, 23

A Photoelectric Investigation of Ap-stars in Open Clusters. III. NGC 2362, NGC 2546, and NGC 3228

*Maitzen, H.M.* **115**, 275

### Peculiar Galaxies

Centimetre Wavelengths Radio Studies of Clumpy Irregular Galaxies

*Heidmann, J., Klein, U., Wielebinski, R.* **105**, 188

Physical Conditions in H II/OH Maser Regions

*Guilloteau, S.* **116**, 101

Peculiar Motion of the Sun, see Solar Motion

Penumbra, see Sunspots

Photometry, see also under the different Objects, especially Clusters, UV Radiation

X- and  $\gamma$ -ray Superfast Photometry

*Bonazzola, S., Chevreton, M.* **105**, 1

QSO Counts: a Complete Survey of Stellar Objects to  $B=23$

*Koo, D.C., Kron, R.G.* **105**, 107

The Photometric History of the BL Lacertae Object OJ 287

*Gaida, G., Röser, H.-J.* **105**, 362

How to Measure the Sun like a Star

*Tüg, H.* **105**, 395

A Direct *UBV* Color Measurement of the Sun

*Tüg, H., Schmidt-Kaler, T.* **105**, 400

Quadruple Extrema in the Complex Lightcurve of the Asteroid 37 Fides?

*Schober, H.J.* **105**, 419

Geneva Photometric Boxes. II. The Reddening Towards the Galactic Poles

*Nicolet, B.* **106**, 378; **47**, 199

Three-Colour Photometry of the Milky-Way Field HD 95540

*Becker, W., Hassan, S.M.* **106**, 379; **47**, 247

Membership, Basic Parameters and Luminosity Function of the Southern Open Cluster NGC 2547

*Clariá, J.J.* **106**, 380; **47**, 323

Picture Gallery: a Structured Presentation of OAO-2 Photometric Data Supported by OAO-2 Spectrophotometric Data and *UBV*, ANS and TD1 Observations

*Koornneef, J., Meade, M.R., Wesselius, P.R., Code, A.D., van Duinen, R.J.* **106**, 381; **47**, 341

RGU Three Colour Photometry of a Field in Centaurus

*Spaenhauer, A., Fang, Ch.* **107**, 412; **47**, 441

Catalogue of Measurements in the DDO Photoelectric Photometric System (Magnetic Tape)

*Meylan, G.* **107**, 414; **47**, 483

Influence of Ellipticity on Photometric Profiles of Elliptical Galaxies

*Nieto, J.L.* **107**, 415; **47**, 535

VBLUW Photometry of Magellanic Cloud Super- and Hypergiants, Made in 1977 up to 1979

*van Genderen, A.M., van Leeuwen, F., Brand, J.* **107**, 416; **47**, 591

UV Photometric Data on Standard A, F and Am Stars Observed by S2/68

*Van't Veer-Menneret, C., Faraggiana, R., Burkhart, C., Oberto, Y.* **107**, 416; **47**, 595

Photoelectric Photometry of Three Dark Asteroids

*Debehogne, H., De Sanctis, G., Zappalà, V.* **108**, 197

Classification Properties of the Vilnius-Geneva Photometric System. II. Stars with Peculiar Chemical Composition

*North, P., Hauck, B., Straižys, V.* **108**, 373

The Visual Double W UMa Binary BV and BW Draconis

*Geyer, E.H., Hoffmann, M., Karimie, M.T.* **108**, 416; **48**, 85

Discovery of Fast Optical Activity in the X-ray Source GX 339-4

*Motch, C., Ilovaisky, S.A., Chevalier, C.* **109**, L1

Historical Light Variations in Quasars Measured in Turku

*Takalo, L.O.* **109**, 4

UV, Optical and IR Observations of the Cepheid R Muscae

*Eichendorf, W., Heck, A., Caccin, B., Russo, G., Sollazzo, C.* **109**, 274

Optical Structure of the Core of the Dynamically Advanced Globular Cluster NGC 6397

*Aurière, M.* **109**, 301

Automatic Image Classification

*Butchins, S.A.* **109**, 360

Photometry of 0957+561; Detection of Short Period Variations (in French)

*Vanderriest, C., Bijaoui, A., Félenbok, P., Lelièvre, G., Schneider, J., Wlrick, G.* **110**, L11

Photoelectric Photometry of 4 U 2129+47

*Calafat, R., Canal, R., Núñez, J., Torra, J.* **110**, 23

*uwy* photometry of Visual Double Stars: Absolute Magnitudes of Intrinsically Bright Stars

*Olsen, E.H.* **110**, 179; **48**, 165

*uwy* Photometry in McCormick Proper Motion Fields

*Degewij, J.* **110**, 183; **48**, 481

Geneva Photometric Boxes. O. Announcement of the Catalogue (Microfiches and Magnetic Tape)

*Nicolet, B.* **110**, 183; **48**, 485

Absolute Photometry of Supernova Remnants and Emission Nebulae in the Galaxy and the Magellanic Clouds

*Greve, A., van Genderen, A.M., Dennefeld, M., Danziger, I.J.* **111**, 171

Reddening Relations of the *VBLUW* and *UBV* Systems for Objects with Emission Line Spectra

*Greve, A., van Genderen, A.M.* **111**, 185

Three-colour Photometry of a Field near the Galactic Centre (SA 133 F)

*Becker, W., Fang, Ch.* **111**, 209; **49**, 61

Homogenous Catalogue of Red and Infrared Magnitudes in the Photoelectric Photometric System of Kron (Magnetic Tape)

*Jasniewicz, G.* **111**, 211; **49**, 99

Intermediate Band Filter Spectrophotometry of Bright Galaxies.

I. Observations

*Solheim, J.E., de Vaucouleurs, G., de Vaucouleurs, A.* **111**, 212; **49**, 109

Further VBLUW Photometry of the S Doradus Type Variables S Dor and HDE 269006 in the LMC and a Discussion on Their Temperatures

*van Genderen, A.M.* **112**, 61

RGU-photometry of the Field Vela II

*Becker, W., Marsoglu, A.* **112**, 133

The Cepheid Period-Luminosity-Colour Relation: A Most Unsuitable Distance Indicator

*Stift, M.J.* **112**, 149

- Photoelectric Observations of 44 Nysa During 1981 Opposition  
*Piironen, J.O.* **112**, 172
- ANS Ultraviolet Photometry, Catalogue of Point Sources  
*Wesselius, P.R., Van Duinen, R.J., de Jonge, A.R.W., Aalders, J.W.G., Luinge, W., Wildeman, K.J.* **112**, 178; **49**, 427
- Photographic RGU Photometry of Five Southern Open Clusters in Vela II  
*Topaktas, L., Fenkart, R.P.* **112**, 178; **49**, 475
- A Photoelectric UVB Sequence in a Low Extinction Puppis Field  
*Reed, B.C., FitzGerald, M.P.* **112**, 179; **49**, 521
- Four-colour Photometry of Eclipsing Binaries, XIVB: Lightcurves of QX Carinae  
*Andersen, J., Clausen, J.V., Nordström, B., Reipurth, B.* **112**, 180; **49**, 571
- New UVB Parameters for 46 E-SO Galaxies in the Virgo Cluster  
*Michard, R.* **112**, 180; **49**, 591
- Surface Photometry of the Spiral Galaxy NGC 4501  
*Send, U.* **112**, 235
- Geneva [U, B, V] Intrinsic Colours of B-type Stars  
*Cramer, N.* **112**, 330
- Detailed Bibliography on the Surface Photometry of Galaxies  
*Davoust, E., Pence, W.D.* **112**, 394; **49**, 631
- Photoelectric and Spectrographic Observations of  $\rho$  Vir (HR 4828)  
*Antonello, E., Mantegazza, L.* **112**, 395; **49**, 709
- On the Short-term Variability of HD 153919 (= 4U 1700-37 = V884 Sco)  
*van Paradijs, J., van der Woerd, H.* **113**, 27
- Integrated Colors of Young Open Clusters as a Function of Age  
*Tarrab, I.* **113**, 57
- Multiperture Photometry of Galaxies. II. Near-infrared Observations of Six Isolated Objects  
*Brosch, N., Isaacman, R.* **113**, 231
- Photometric Properties of Ap Stars in the Geneva System  
*Hauck, B., North, P.* **114**, 23
- Photographic Surface Photometry of the Milky Way. II. Surface Photometry in the Region of the Dark Cloud "Coalsack" in U, B, V, R (in German)  
*Seidensticker, K.J., Schmidt-Kaler, T., Schlosser, W.* **114**, 60
- HR 2724 - A New Bright Variable in the  $\delta$  Scuti Instability Strip  
*Baade, D., Stahl, O.* **114**, 131
- The Bok and Tifft UVB Sequence in the Large Magellanic Cloud: Revised and Extended  
*Alcaino, G., Liller, W.* **114**, 213
- UVB-polarimetry of the X-ray Binaries HD 77581 (4U 0900-40), HD 153919 (4U 1700-37) and of HD 152667  
*Östreicher, R., Schulte-Ladbeck, R.* **114**, 328
- Photoelectric UVB-photometry in the Large Magellanic Cloud (Text in German)  
*Issersted, J.* **114**, 419; **50**, 7
- RGU-three Colour Photometry of a Field near NGC 6171 (Text in German)  
*Wiedemann, D.* **114**, 421; **50**, 93
- Two Photoelectric UVBRI Sequences in the Bar of the Small Magellanic Cloud  
*Vignau, J., Azzopardi, M.* **114**, 422; **50**, 119
- Photometry in the Central Region of the Globular Cluster NGC 7099  
*Alcaino, G., Wamsteker, W.* **114**, 422; **50**, 141
- Absolute Photometry of the Crab Nebula  
*Greve, A., van Genderen, A.M.* **115**, 79
- Photographic Surface Photometry of the Milky Way. IV. The Northern Milky Way in the Ultraviolet Spectral Region (Text in German)  
*Winkler, C., Schmidt-Kaler, T., Schlosser, W.* **115**, 115
- Absolute Ultraviolet Fluxes of Elliptical Galaxies as Observed with the Astronomical Netherlands Satellite (ANS)  
*de Boer, K.S.* **115**, 218; **50**, 247
- Electronographic Photometry in the Galactic Cluster M 37  
*Robin, A.* **115**, 218; **50**, 251
- UBV-H $\beta$  Photometry of Luminous Stars Between  $l = 335^\circ$  and  $b = 6^\circ$   
*Dachs, J., Kaiser, D., Nikolov, A., Sherwood, W.A.* **115**, 218; **50**, 261
- Physical Studies of Asteroids. VIII. Photoelectric Photometry of the Asteroids 42, 48, 93, 105, 145, and 245  
*Debehogne, H., Lagerkvist, C.-I., Zappalà, V.* **115**, 218; **50**, 277
- Photographic Photometry of Galaxies Using the INMP. I. The Lenticulars NGC 404 and NGC 524  
*Barbon, R., Capaccioli, M., Rampazzo, R.* **115**, 388
- Frequency Analyses of Light and Radial Velocity Observations of  $\alpha$  Lup  
*Lampens, P., Goossens, M.* **115**, 413
- Photosphere**, see Solar Photosphere
- Physical Processes**, see also Dynamo Theory, Gas Dynamics, Hanle Effect, Hydrodynamics, Line Broadening, Magnetohydrodynamics, Nuclear Reactions, Plasma Physics, Radiative Transfer, Shock Waves
- Classical Rigid-ellipsoid model for Collisions of H<sub>2</sub> with HC<sub>3</sub>N and HC<sub>9</sub>N  
*Bhattacharyya, S.S., Dickinson, A.S.* **107**, 26
- Vlasov Equation?  
*Hénon, M.* **114**, 211
- Planetary Atmosphere**, see under the single Planets
- On the Phase Matrix Basic to the Scattering of Polarized Light  
*Siewert, C.E.* **109**, 195
- A First Order Approximation Model of CO<sub>2</sub> Infrared Bands in the Venusian Lower Thermosphere  
*Battaner, E., Rodrigo, R., López-Puertas, M.* **112**, 229
- Surface Marking Variations of Selected Areas on Mars  
*de Mottoni y Palacios, G., Dollfus, A.* **116**, 323
- Planetary Nebulae**, see also Supernovae and Supernova Remnants
- Planetary Nebulae with Close Binary Central Stars  
*Livio, M.* **105**, 37
- Spectral Variations and Evidence for Edge and/or Line Locking Mechanism(s) in the Low-Excitation Planetary Nebula HD 138403  
*Surdej, A., Surdej, J., Swings, J.P.* **105**, 242
- The Distance to the Planetary Nebula NGC 7027  
*Pottasch, S.R., Goss, W.M., Arnal, E.M., Gathier, R.* **106**, 229
- The Kinematical Structure of the Bipolar Nebula AFGL 618  
*Carsenty, U., Solf, J.* **106**, 307
- Observations and Morphological Study of Ring Planetary Nebulae in [OIII] (Text in French)  
*Louise, R.* **107**, 416; **47**, 575
- Stellar Wind in the Nucleus of IC 2149  
*Perinotto, M., Benvenuti, P., Cerruti-Sola, M.* **108**, 314
- The Expansion Velocity Field Within the Planetary Nebulae NGC 40 and NGC 7026  
*Sabbadin, F., Hamzaoglu, E.* **109**, 131

## Abundances in the Planetary Nebula NGC 6853

Pottasch, S.R., Gilra, D.P., Wesselius, P.R. **109**, 182

## Planetary Nebulae with Close Binary Nuclei-corrections to Angular Momentum Loss

Salzman, J., Livio, M., Shaviv, G. **109**, 201

## On the Origin of Planetary Nebulae

Nussbaumer, H. **110**, L1

## Internal Motions in Planetary Nebulae

Sabbadin, F., Hamzaoglu, E. **110**, 105

## NGC 2440: Ionization Structure, Extinction, and Near Infrared Spectrum

Condal, A.R. **112**, 124

## Forbidden Emission Lines of Fe VII

Nussbaumer, H., Storey, P.J. **113**, 21

## Detection and Study of Secondary Structures in Some Planetary Nebulae

Louise, R. **114**, 205

Discovery of a Large, High-excitation Planetary Nebula at  $l = 136^\circ$ ,  $b = +5^\circ$ 

Heckathorn, J.N., Fesen, R.A., Gull, T.R. **114**, 414

## The Expansion Velocity Field Within the Planetary Nebulae NGC 1501 and NGC 6905

Sabbadin, F., Hamzaoglu, E. **114**, 419; **50**, 1

Electron Densities from the O IV  $\lambda$  1401 Multiplet

Nussbaumer, H., Storey, P.J. **115**, 205

## Radio Observations at 14.7 GHz of Southern Planetary Nebulae

Milne, D.K., Aller, L.H. **115**, 217; **50**, 209

## Observations of Bipolar Planetary Nebula 19W32

Kohoutek, L. **115**, 420

## The Unprecedented Light Variations of NGC 2346

Méndez, R.H., Gathier, R., Niemela, V.S. **116**, L5

## The Far-UV Spectrum of the Low-excitation Planetary Nebula HD 138403

Surdej, J., Heck, A. **116**, 80

## Interpretation of Line Profiles of the Symbiotic Star V 1016 Cyg

Kindl, C., Marxer, N., Nussbaumer, H. **116**, 265

## Planetary System, see Cosmogony

## Planets, see also under the individual names of Planets

## A Direct Method of Computing Small Divisors in Planetary Theory

Dvorak, R. **108**, 14

## Integration Constants and Mean Elements for All the Planets

Bretagnon, P. **108**, 69

## Theory for the Motion of All the Planets. The VSOP82 Solution (in French)

Bretagnon, P. **114**, 278

## Orientation of the JPL Ephemerides, DE 200/LE 200, to the Dynamical Equinox of J 2000

Standish, E.M., Jr. **114**, 297

## Surface Marking Variations of Selected Areas on Mars

de Mottoni y Palacios, G., Dollfus, A. **116**, 323

## Plasma Physics, see also Alfvén Waves, Gas Dynamics, Hydrodynamics

## The Unsteady Beam

Nepveu, M. **105**, 15

## Solar Type I Noise Storms and Newly Emerging Magnetic Flux

Spicer, D.S., Benz, A.O., Huba, J.D. **105**, 221

## Search for Harmonic Emission in Solar Type I Radio Bursts

Jaeggi, M., Benz, A.O. **107**, 88

## The Fokker-Planck Equation for the Radiation Transfer in a Strongly Magnetized Plasma

Bonazzola, S. **108**, 19

## Diffusion of Keplerian Motions by a Stochastic Force. I. A General Formalism

Barge, P., Pellat, R., Millet, J. **109**, 228

## The Effects of Non-equilibrium Ionization on the X-ray Emission of Supernova Remnants

Gronenschild, E.H.B.M., Mewe, R. **110**, 180; **48**, 305

## The Anomalous Braking Index of the Crab Pulsar: A Plasma Inertial Effect

Heintzmann, H., Schröfer, E. **111**, L4

## Monte Carlo Study of Highly Polarized Cool Stars

Daniel, J.-Y. **111**, 58

## A Diffuse Component of Solar Electron Streams as a Possible Source of Decametric and Hectometric Continuum

Levin, B.N. **111**, 71

## Blowing up of Two-dimensional Magnetohydrostatic Equilibria by an Increase of Electric Current or Pressure

Heyvaerts, J., Lasry, J.M., Schatzman, M., Witomsky, P. **111**, 104

## Transformation of Magnetogravitational Waves in the Solar Atmosphere

Zhugzhda, Y.D., Dzhalilov, N.S. **112**, 16

## The Importance of Plasma Effects on Electron-cyclotron Maser-emission from Flaring Loops

Sharma, R.R., Vlahos, L., Papadopoulos, K. **112**, 377

## On the Self-consistent Solutions of Pulsar Plasma Waves

Chian, A.C.-L. **112**, 391

## Plasma-magnetospheric Interaction in X-ray Sources: An Analysis of the Linear Kelvin-Helmholtz Instability

Wang, Y.-M., Welter, G.L. **113**, 113

## Structure of Dynamics of Supersonic Jets

Norman, M.L., Smarr, L., Winkler, K.-H. A., Smith, M.D. **113**, 285

## Comments on Radial White Dwarf Accretion

Kuijpers, J., Pringle, J.E. **114**, L4

## Vlasov Equation?

Hénon, M. **114**, 211

## Local Coupling of Surface MHD Waves with Kinetic Alfvén Waves in Jets

Bodo, G., Ferrari, A. **114**, 394

## Cyclotron Emission in Strongly Magnetized Plasmas

Herold, H., Ruder, H., Wunner, G. **115**, 90

## Stationary Spherical Accretion into Black Holes. The Transition from the Optically Thin to the Optically Thick Regime

Soffel, M.H. **116**, 111

## Non-linear Theory of Cosmic Ray Shocks Including Self-generated Alfvén Waves

McKenzie, J.F., Völk, H.J. **116**, 191

## Polarization, see also Faraday Rotation and under the different Objects

## Interstellar Polarization in the Immediate Solar Neighbourhood

Timbergen, J. **105**, 53

## Radio Observations of the Giant Quasar 4C 34.47

Jägers, W., van Breugel, W., Miley, G.K., Schilizzi, R.T., Conway, R.G. **105**, 278

## Stability and Symmetry of Zodiacal Light Polarization in the Antisolar Hemisphere

Leinert, C., Planck, B. **105**, 364

Observations of the Polarization of Average Pulsar Profiles at High Frequency

*Morris, D., Graham, D.A., Sieber, W., Bartel, N., Thomasson, P.* **106**, 180; **46**, 421

A Survey of the Distribution of  $\lambda$  2.8 cm Radio Continuum in Nearby Galaxies. II. NGC 6946

*Klein, U., Beck, R., Buczkowski, U.R., Wielebinski, R.* **108**, 176  
Integrated Linear Polarization of Extragalactic Radio Sources at 10.5 GHz ( $\lambda$  2.86 cm). II

*Simard-Normandin, M., Kronberg, P.P., Button, S.* **108**, 416; **48**, 137

A Linear Polarization Survey of T Tauri Stars

*Bastien, P.* **108**, 417; **48**, 153

On the Phase Matrix Basic to the Scattering of Polarized Light

*Siewert, C.E.* **109**, 195

Fine Structure near the Starting Frequency of Solar Type III Radio Bursts

*Benz, A.O., Zlobec, P., Jaeggi, M.* **109**, 305

Expected Broadband Linear Polarization from Cool Stars with Magnetic Structures

*Landi Degl'Innocenti, E.* **110**, 25

Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66 B, and 3C 129

*van Breugel, W.* **110**, 225

Polarimetric Observations of HD 199178 – an FK Comae Type Star

*Pirola, V., Vilhu, O.* **110**, 351

Helios Zodiacal Light Measurements – a Tabulated Summary

*Leinert, C., Richter, I., Pitz, E., Hanner, M.* **110**, 355

GX339-4: Cyclotron Radiation from an Accretion Flow

*Fabian, A.C., Guilbert, P.W., Motch, C., Ricketts, M., Ilovaisky, S.A., Chevalier, C.* **111**, L9

Diagnostic of Coronal Magnetic Fields from Microwave Polarization Reversal

*Bandiera, R.* **112**, 52

Multifrequency Observations of Extended Radio Galaxies V: 3C 31, 3C 33.1, 3C 35, 3C 66B, 3C 129, 3C 130, 3C 223, 3C 310, 3C 390.3 and 4C 48.29

*Van Breugel, W., Jägers, W.* **112**, 180; **49**, 529

Two Colour Photometry and Polarimetry of the Solar Corona of 16 February 1980

*Dürst, J.* **112**, 241

Observed Polarization of the Fe XIV 5303 Coronal Emission Line

*Arnaud, J.* **112**, 350

Broadband Linear Polarization from Magnetized Stellar Atmospheres. Numerical Tables for the Magnetic Intensification Mechanism

*Landi Degl'Innocenti, E., Calamai, G.* **112**, 395; **49**, 677

Geometry of Pulsar Beams: Relative Orientations of Rotation Axis, Magnetic Axis and Line of Sight

*Narayan, R., Vivekanand, M.* **113**, L3

Non-LTE Resonance Line Polarization with Partial Redistribution Effects

*Rees, D.E., Saliba, G.J.* **115**, 1

On Interstellar Linear Polarization and Grain Growth

*Aannestad, P.A.* **115**, 219

The Analysis of Fe XIV 5303 Coronal Emission-line Polarization Measurements

*Arnaud, J.* **116**, 248

**Positions**, see **Astrometry**

**Pre-Main-Sequence-Stars**, see also **Herbig-Haro Objects**, **Protostars**

New Infrared Objects Towards Southern Type I OH and H<sub>2</sub>O Masers

*Braz, M.A., Epchtein, N.* **111**, 91

**Prominences**, see **Solar Prominences**

**Proper Motions**

Photometric Parallaxes of Nearby Main-Sequence Stars with Annual Proper Motion of 0".7 or More Derived from Eggen's B, V and R, I Data

*Gliese, W.* **107**, 413; **47**, 471

A Pool of Faint Stars Applied to Star Catalogue Formation

*Hering, R., Walter, H.G.* **115**, 197

**Protoplanetary Cloud**, see **Cosmogony**

Mass Loss from the Protoplanetary Nebula

*Horedt, G.P.* **110**, 209

**Protostars**, see also **Star Formation**, **YY Orion Stars**

**Pulsars**, see also **Crab Nebula**, **Neutron Stars**

Observations of the Polarization of Average Pulsar Profiles at High Frequency

*Morris, D., Graham, D.A., Sieber, W., Bartel, N., Thomasson, P.* **106**, 180; **46**, 421

Neutrino Cyclotron Radiation from Superfluid Vortexes in Neutron Stars: A New Mechanism for Pulsar Spin Down

*Qiu-He Peng, Ke-Liang Huang, Jie-Hao Huang* **107**, 258

Some Constraints on the Evolutionary History of the Binary Pulsar PSR 1913+16

*Srinivasan, G., van den Heuvel, E.P.J.* **108**, 143

Pulse-interpulse Interaction in Pulsar PSR 1822-09

*Fowler, L.A., Wright, G.A.E.* **109**, 279

PSR 1133+16: Determination of the Dispersion Measure and the Locations of the Emitting Regions

*Kardashev, N.S., Nikolaev, N.Ya., Novikov, A.Yu., Popov, M.V., Soglasnov, V.A., Kuzmin, A.D., Smirnova, T.V., Bartel, N., Sieber, W., Wielebinski, R.* **109**, 340

The Anomalous Braking Index of the Crab Pulsar: A Plasma Inertial Effect

*Heintzmann, H., Schrüfer, E.* **111**, L4

On the Self-consistent Solutions of Pulsar Plasma Waves

*Chian, A.C.-L.* **112**, 391

Geometry of Pulsar Beams: Relative Orientations of Rotation Axis, Magnetic Axis and Line of Sight

*Narayan, R., Vivekanand, M.* **113**, L3

Thermal X-ray Emission from Isolated Older Pulsars: A New Heating Mechanism

*Huang, J.-H., Lingenfelter, R.E., Peng, Q.-H., Huang, K.-L.* **113**, 9

A Search for Pulsar Haloes at 843 MHz

*Kesteven, M.J., Durdin, J.M.* **113**, 211

Causal Relationship Between Pulsar Long-term Intensity Variations and the Interstellar Medium

*Sieber, W.* **113**, 311

A Distinct Shell Structure in H<sub>1</sub>-line Emission at Intermediate Galactic Latitudes

*Velden, L., Hirth, W.* **113**, 340

The Angular Beaming Model of Microstructure and the Subpulse Drifting Phenomenon

*Gil, J.* **115**, 270



# A Multi-frequency Fluctuation Spectrum Analysis of the Pulse to Pulse Intensity Variations in Nine Pulsars

Nowakowski, L., Usowicz, J., Wolszczan, A., Kepa, A. **116**, 158

## Pulsations, see also Oscillations

### An Usually Short Stable Period of Absorption Line Asymmetries and V/R Variations in the Spectrum of the Be Star 28 Cma

Baade, D. **105**, 65

### The Pulsation of the Outer Layers of the Beta Cephei-type Variable BW Vul

Burger, M., de Jager, C., van den Oord, G.H.J., Sato, N. **107**, 320

### The Pulsation of the Outer Layers of the Beta Cephei Star $\sigma$ Sco

Burger, M., de Jager, C., van den Oord, G.H.J. **109**, 289

### On Local Theories of Time-dependent Convection in the Stellar Pulsation Problem. III. The Effect of Turbulent Viscosity (Continued)

Gonczi, G. **110**, 1

### Fast Coherent Oscillations in Variable X-ray Sources and Bursters

Livio, M., Bath, G.T. **116**, 286

## Quasi-stellar Objects

### Cepstral Analysis of Interfering Delay Signals as Applied to Detection of Gravitational Lenses

Afraimovich, E.L. **105**, L5

### QSO Counts: a Complete Survey of Stellar Objects to $B=23$

Koo, D.C., Kron, R.G. **105**, 107

### Quasar-generating Superclusters: An Explanation for a Clumpy Quasar Sky?

de Ruiter, H.R., Zuiderwijk, E.J. **105**, 254

### Radio Observations of the Giant Quasar 4C 34.47

Jägers, W., van Breugel, W., Miley, G.K., Schilizzi, R.T., Conway, R.G. **105**, 278

### The Properties of AP Librae from *UBV* Photoelectric Photometry

Westerlund, B.E., Wlrick, G., Garnier, R. **105**, 284

### The Photometric History of the BL Lacertae Object OJ 287

Gaida, G., Röser, H.-J. **105**, 362

### On the Quasar Surface Density

Véron, P., Véron-Cetty, M.P. **105**, 405

### Possible Measurement of the Time Delay Between Gravitational Images of Expanding Double Radio-sources

Vanderriest, C. **106**, L1

### On Symmetric Structure in Compact Radio Sources

Phillips, R.B., Mutel, R.L. **106**, 21

### An Assessment of the Detectability of X-ray Emission from Winds in Active Galactic Nuclei and Quasars

Beltrametti, M., Drew, J. **106**, 153

### Profiles of [O III] Lines in QSOs

Miley, G.K., Heckman, T.M. **106**, 163

### Compact and Extended Structure in B2 Radio Sources of Intermediate Strength

Padielli, L., Kapahi, V.K., Katgert-Merkelijn, J.K. **106**, 181; 46, 473

### The Periodicity in the Distribution of Quasar Redshifts and the Density Perturbations in the Early Universe

Fang, L.-Z., Chu, Y.-Q., Cao, Ch. **106**, 287

### Hydrogen Line Spectrum in Quasars. II. A Critical Discussion of Model Calculations for the Broad Line Region

Collin-Souffrin, S., Dumont, S., Tully, J. **106**, 362

### New Study on Quasars and Isotropy of $H_0$

Reboul, H.J. **108**, 85

### VLBI Observations of 12 Compact Radio Sources North of Declination $70^\circ$

Eckart, A., Hill, P., Johnston, K.J., Pauliny-Toth, I.I.K., Spencer, J.H., Witzel, A. **108**, 157

### A Possible Large-scale Anisotropy of the Universe

Fliche, H.H., Souriau, J.M., Triay, R. **108**, 256

### Integrated Linear Polarization of Extragalactic Radio Sources at 10.5 GHz ( $\lambda$ 2.86 cm). II

Simard-Normandin, M., Kronberg, P.P., Button, S. **108**, 416; 48, 137

### Historical Light Variations in Quasars Measured in Turku

Takalo, L.O. **109**, 4

### Quasars in a Control Field Far from Bright Galaxies

Arp, H., Surdej, J. **109**, 101

### Non-thermal Emission from Relativistic Accretion Disks: A Simple Model for Axisymmetric Inhomogeneous Sources

Pineault, S. **109**, 294

### Extended H I-envelopes Around Spiral Galaxies: NGC 2655 and NGC 2715

Huchtmeier, W.K., Richter, O.-G. **109**, 331

### Photometry of 0957+561; Detection of Short Period Variations (in French)

Vanderriest, C., Bijaoui, A., Fèlenbok, P., Lelièvre, G., Schneider, J., Wlrick, G. **110**, L11

### The Physical Nature of the Blue Objects in the Field of 88 Leonis

Erculiani Abati, L. **110**, 180; 48, 333

### Spectral Index Behaviour of Low Frequency Variable Radio Sources

Mantovani, F. **110**, 345

### IUE Observations of Quasars 3C249.1 and 3C232

Dultzin-Hacyan, D., Salas, L., Daltabuit, E. **111**, 43

### Nonlinear Shear Instabilities in an Infinite Slab

Nepveu, M. **112**, 223

### Further Investigations on Possible Correlations Between QSOs and the Lick Catalogue of Galaxies

Nieto, J.-L., Seldner, M. **112**, 321

### Spectral Index - Flux Density Relation for Extragalactic Radio Sources Found in Metre-wavelength Surveys

Gopal-Krishna, Steppe, H. **113**, 150

### The Cosmic Density Wave and Its Observable Vestige

Liu, Y.-Z. **113**, 192

### Precise Optical Positions of Radio Sources in the FK 4-system. II. Results from 28 Sources on the Northern Hemisphere and a Preliminary Comparison of the Optical-Radio Reference Frame

de Vegt, C., Gehlich, U.K. **113**, 213

### Statistical Correction of Projection of Radio-sources on the Sky and Application to the Apparent Size-Redshift and Linear Size-Line Width Relation

Nottale, L. **113**, 223

### Structure of Dynamics of Supersonic Jets

Norman, M.L., Smarr, L., Winkler, K.-H. A., Smith, M.D. **113**, 285

### On the Behaviour of QSO Space Density Beyond $z=3.5$

Mathez, G., Nottale, L. **113**, 336

### A Rapid Outburst of BL Lac at 2.72 GHz

Reich, W., Steffen, P. **113**, 348

### Evolutionary Luminosity Functions of Extragalactic Sources Driven by Gravitational Power

Cavaliere, A., Giallongo, E., Messina, A., Vagnetti, F. **114**, L1

### Escape Probabilities, Mean Number of Scatterings and Net Radiative Bracket for Resonance Lines

Frisch, H. **114**, 119

## On the Interpretation of Optically Thin Synchrotron Spectra

*Pineault, S.* **114**, 177

## Spectroscopic Observations of Thirteen Optically-selected QSOs in a Large Field Centred Around NGC 5334

*Surdej, J., Swings, J.P., Arp, H., Barbier, R.* **114**, 182

## The Influence of Buoyancy on the Stability of Jets

*Achterberg, A.* **114**, 233

## Local Coupling of Surface MHD Waves with Kinetic Alfvén Waves in Jets

*Bodo, G., Ferrari, A.* **114**, 394

The Precision on the Measure of  $q_0$  Using the Gravitational Lensing Effect

*Lacroix, G., Schneider, J.* **115**, 54

Asymmetric Emission-line Regions with Out-flowing Mass in QSOs and the  $Z_{ab} > Z_{em}$  Systems

*Goldman, I., Bahcall, J.N.* **115**, 242

## The Quasar B2 1320+29

*Feretti, L., Giovannini, G., Parma, P.* **115**, 423

## The Connection of a Catalogue of Stars with an Extragalactic Reference Frame

*Froeschlé, M., Kovalevsky, J.* **116**, 89

**R Canis Majoris Stars**, see Eclipsing Binaries**R Coronae Borealis Stars**

## Lithium and Barium in RCrB and XX Cam

*Hunger, K., Schönberner, D., Steenbock, W.* **107**, 93

**Radial Velocities**, see also Spectroscopic Binaries

## Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166

*Griffin, R.F., Mayor, M., Gunn, J.E.* **106**, 221

## The Kinematical Structure of the Bipolar Nebula AFGL 618

*Carsenty, U., Solf, J.* **106**, 307

## Absolute Measurement of the Bisector of the 6301.5091 Fe I Line in the Solar Spectrum

*Cavallini, F., Ceppatelli, G., Righini, A.* **109**, 233

## The Peculiar Classical Cepheid HR 7308

*Burki, G., Mayor, M., Benz, W.* **109**, 258

## Internal Motions in Planetary Nebulae

*Sabbadin, F., Hamzaoglu, E.* **110**, 105

## Radial Velocities from Objective-prism Plates in the Direction of the Large Magellanic Cloud (Text in French)

*Fehrenbach, Ch., Duflet, M.* **110**, 182; **48**, 409

## Radial Velocities of Galaxies Detected in the Arecibo 2380 MHz Survey

*Marano, B., Vettolani, G.* **110**, 183; **48**, 453

## Mass Motions in the Solar Chromosphere and Transition Zone

*Mein, P., Simon, G., Vial, J.C., Shine, R.A.* **111**, 136

## The Radial Velocity Field of the Milky Way Outside the Galactic Plane

*Feitzinger, J.V., Kreitschmann, J.* **111**, 255

## Vertical Structure of the Solar Photosphere II. The Small-scale Velocity Field

*Durrant, C.J., Nesis, A.* **111**, 272

Radial Velocities of 617 Stars Belonging to Four Stellar Fields of  $4^\circ \times 4^\circ$  (Text in French)

*Fehrenbach, C., Burnage, R.* **112**, 178; **49**, 483

## Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism I: Improved Orbital Elements for Binaries in and near NGC 2516

*Gieseke, F., Karimie, M.T.* **112**, 179; **49**, 497

Photoelectric and Spectrographic Observations of  $\rho$  Vir (HR 4828)

*Antonello, E., Mantegazza, L.* **112**, 395; **49**, 709

## Radial Velocities of CH Cygni During the Outburst Started in 1977

*Hack, M., Rusconi, L., Sedmak, G., Engin, S., Yilmaz, N.* **113**, 250

## The Expansion Velocity Field Within the Planetary Nebulae NGC 1501 and NGC 6905

*Sabbadin, F., Hamzaoglu, E.* **114**, 419; **50**, 1

## The Very Small Amplitude Cepheids HD 9250 and HD 14662

*Burki, G., Benz, W.* **115**, 30

## Kinematics of Ring-shaped Nebulae in the LMC. II. The Radial Velocity Field of N 185

*Rosado, M., Georgelin, Y.M., Georgelin, Y.P., Laval, A., Monnet, G.* **115**, 61

## Measurements of Solar Transition Zone Velocities and Line Broadening Using the Ultraviolet Spectrometer and Polarimeter on the Solar Maximum Mission

*Simon, G., Mein, P., Vial, J.C., Shine, R.A., Woodgate, B.E.* **115**, 367

**Radiation Pressure**

## Super-critical X-ray Luminosities: The Structure and Stability of a Radiation-supported Plasma Layer

*Wang, Y.-M.* **112**, 24

**Radiative Transfer**, see also Scattering

## Hydrogen Line Spectrum in Quasars. II. A Critical Discussion of Model Calculations for the Broad Line Region

*Collin-Souffrin, S., Dumont, S., Tully, J.* **106**, 362

On Excitation Through Radiative Pumping of the Fe II UV-Mult. 191  $\lambda\lambda$  1785–88 Å Observed with IUE during the Eclipse of 32 Cyg

*Hempe, K., Reimers, D.* **107**, 36

## Compact Gamma Ray Point Sources: Are Gamma Ray Sources Optically Thick at Lower Frequencies?

*Schlickeiser, R.* **107**, 378

## The Fokker-Planck Equation for the Radiation Transfer in a Strongly Magnetized Plasma

*Bonazzola, S.* **108**, 19

## Radiative Transfer: Analytic Solution of Difference Equations

*Kalkofen, W., Wehrse, R.* **108**, 42

## Nonspherical Stellar Envelopes and Winds: Effects of Structure on Radiative Fluxes and Apparent Mass Loss Rates

*Schmid-Burgk, J.* **108**, 169

## An Alternative Derivation of the Line Transfer Equation of an Arbitrarily Polarized Radiation in the Presence of a Magnetic Field, in non-LTE

*Mathys, G.* **108**, 213

## Angle-averaged Redistribution Function in the Laboratory Frame

*Seitz, M., Baschek, B., Wehrse, R.* **109**, 10

## Radiation Transfer in Stellar Interiors

*Opher, R.* **109**, 191

## Radiative Transfer: Comparison of Finite Difference Equations

*Kalkofen, W., Wehrse, R.* **110**, 18

A First Order Approximation Model of CO<sub>2</sub> Infrared Bands in the Venusian Lower Thermosphere

*Battaner, E., Rodrigo, R., López-Puertas, M.* **112**, 229

## Line Profile Fluctuations in a Turbulent Atmosphere

*Loucif, M.L., Magnan, C.* **112**, 287

# Escape Probabilities, Mean Number of Scatterings and Net Radiative Bracket for Resonance Lines

*Frisch, H.* **114**, 119

# Pumping of H II/OH Masers: IR Line Overlaps and Collisional Excitation by H<sub>2</sub>

*Flower, D.R., Guilloteau, S.* **114**, 238

# Numerical Simulation of Radiative Transfer in Circumstellar Dust Shells. I. Spherical Shells

*Lefèvre, J., Bergeat, J., Daniel, J.-Y.* **114**, 341

# A Study of Ultraviolet Spectra of $\zeta$ Aur/VV Cep Systems. I. Resonance Line Formation

*Hempe, K.* **115**, 133

# Radio Frequency Lines, see Radio Frequency Lines: Molecular Lines, ... Recombination Lines, ... 21 cm Line

# Radio Frequency Lines: Molecular Lines, see also Maser, OH Sources

## Ammonia Observations of Cold Cloud Cores

*Ungerechts, H., Walmsley, C.M., Winnewisser, G.* **111**, 339

## OH Observations of NH<sub>3</sub> Sources

*Little, L.T., Cesarsky, D.A.* **112**, 49

## Extended and Anisotropic High-velocity Gas Flows in the Orion-KL Region

*Olofsson, H., Ellér, J., Hjalmarson, Å., Rydbeck, G.* **113**, L18

## The H II Region - Molecular Cloud Complex Sh 2-269: An Optical and Millimeter Wavelength Study

*Heydari-Malayeri, M., Testor, G., Baudry, A., Lafon, G., de la Noë, J.* **113**, 118

## Temperatures and Scales of Giant Cloud Complexes in the Spiral Galaxy IC 342

*Ho, P.T.P., Martin, R.N., Ruf, K.* **113**, 155

## Formaldehyde Absorption in S 128

*Heske, A., Wendker, H.J.* **113**, 170

## Detection of the (8,8) and (9,9) Absorption Lines of Ammonia: The Hot Molecular Cloud Toward Sgr B 2

*Wilson, T.L., Ruf, K., Walmsley, C.M., Martin, R.N., Pauls, T.A., Batrla, W.* **115**, 185

## CO J=3→2 and Submillimetre Continuum Observations of Two Molecular Outflow Sources

*Phillips, J.P., White, G.J., Ade, P.A.R., Cunningham, C.T., Richardson, K.J., Robson, E.I., Watt, G.D.* **116**, 130

# Radio Frequency Lines: Recombination Lines

## Results of a Radio Survey for New Compact H II Regions

*Wink, J.E., Altenhoff, W.J., Mezger, P.G.* **108**, 227

## The Structure of Orion B (NGC 2024): A Recombination Line and Continuum Map

*Krügel, E., Thum, C., Martin-Pintado, J., Pankonin, V.* **110**, 181; **48**, 345

## On Solar Hydrogen Lines in the Far-infrared and Submillimeter Spectrum

*Hoang-Binh, D.* **112**, L3

## WSRT Observations of the H 110 $\alpha$ Recombination Line in the Galactic Centre

*Bregman, J.D., Schwarz, U.J.* **112**, L6

## Aperture Synthesis Observations of Recombination Lines from Compact H II Regions. V. NGC 7538

*Goss, W.M., van Gorkom, J.H., Forster, J.R.* **115**, 164

# Radio Frequency Lines: 21 cm Line, see also Galaxies: Radio Observations, Markarian Galaxies

# Studies of Nearly Face-on Spiral Galaxies. I. The Velocity Dispersion of the H I Gas in NGC 3938

*van der Kruit, P.C., Shostak, G.S.* **105**, 351

# Anomalous Motions of H I Clouds

*Shaver, P.A., Radhakrishnan, V., Anantharamaiah, K.R., Re-tallack, D.S., Wamsteker, W., Danks, A.C.* **106**, 105

# An H I Absorption Determination of the Distance of W 31

*Kalberla, P.M.K., Goss, W.M., Wilson, T.L.* **106**, 167

# An Effelsberg-Green Bank Galactic H I Absorption Line Survey. I. The Observations

*Mebold, U., Winnberg, A., Kalberla, P.M.K., Goss, W.M.* **106**, 180; **46**, 389

# H I Line Studies of Galaxies: I-General Catalogue of 21-cm Line Data

*Bottinelli, L., Gouguenheim, L., Paturel, G.* **106**, 182; **47**, 171

# Brightness Temperature Calibration for 21-cm Line Observations

*Kalberla, P.M.W., Mebold, U., Reif, K.* **106**, 190

# The Distance to the Planetary Nebula NGC 7027

*Pottasch, S.R., Goss, W.M., Arnal, E.M., Gathier, R.* **106**, 229

# Neutral Hydrogen Observations of Double Spiral Galaxies. I. NGC 5905 and NGC 5908

*van Moorsel, G.A.* **107**, 66

# A 21 cm Hydrogen Line Survey of the Small Magellanic Cloud

*Bajaja, E., Loiseau, N.* **108**, 415; **48**, 71

# H I-Observations of Galaxies in the Pegasus I Cluster

*Richter, O.-G., Huchtmeier, W.K.* **109**, 155

# Extended H I-envelopes Around Spiral Galaxies: NGC 2655 and NGC 2715

*Huchtmeier, W.K., Richter, O.-G.* **109**, 331

# Westerbork Observations of H I Absorption in the Direction of Sgr A

*Schwarz, U.J., Ekers, R.D., Goss, W.M.* **110**, 100

# Global Properties of Sa-galaxies from H I-observations

*Huchtmeier, W.K.* **110**, 121

# Telescope Beam Characteristics and Temperature Scale of the Maryland-Green Bank 21-cm Line Survey

*Westerhout, G., Mader, G.L., Harten, R.H.* **111**, 212; **49**, 137

# The Maryland-Green Bank Galactic 21-cm Line Survey

*Westerhout, G., Wendlandt, H.-U.* **111**, 212; **49**, 143

# Anticenter High Velocity H I Stream (Weaver Jet) and Colliding H I Shells

*Watanabe, T.* **111**, 333

# A Catalogue of Radio Sources within 30' of Cep A

*Hughes, V.A., Viner, M.R., Wouterloot, J.G.A.* **111**, 358

# Westerbork and VLA Observations of G 127.1+0.5

*Pauls, T., van Gorkom, J.H., Goss, W.M., Shaver, P.A., Dickey, J.M., Kulkarni, S.* **112**, 120

# Neutral Hydrogen Associated with Southern Supernova Remnants. II. Lupus Loop

*Colomb, F.R., Dubner, G.* **112**, 141

# On a Model of Local Gas Related to Gould's Belt

*Olano, C.A.* **112**, 195

# High Resolution H I Observations of Messier 31

*Bajaja, E., Shane, W.W.* **112**, 396; **49**, 745

# Study of Spiral Galaxies from 392 New Measurements of 21-cm Line Data

*Bottinelli, L., Gouguenheim, L., Paturel, G.* **113**, 61

# The Galactic Center - Structure and Kinematics from 21-cm Line Measurements

*Rohlfs, K., Braunsfurth, E.* **113**, 237

# 21 cm Line Observations of cD Galaxies

*Valentijn, E.A., Giovanelli, R.* **114**, 208



## 21-cm Line Profiles of 392 Spiral Galaxies

*Bottinelli, L., Gouguenheim, L., Paturel, G.* **114**, 421; **50**, 101

## An Effelsberg - Green Bank Galactic H I Absorption Line Survey. II. Results and Interpretation

*Mebold, U., Winnberg, A., Kalberla, P.M.W., Goss, W.M.* **115**, 223

## Fine Structure in High Velocity Clouds Near the South Celestial Pole

*Morras, R.* **115**, 249

## NGC 1961: Stripping of a Supermassive Spiral Galaxy

*Shostak, G.S., Hummel, E., Shaver, P.A., van der Hulst, J.M., van der Kruit, P.C.* **115**, 293

## The Giant Spiral Galaxy M 101. VIII. Star Formation in H I-H II Associations

*Viallefond, F., Goss, W.M., Allen, R.J.* **115**, 373

## Neutral Hydrogen in Two Extremely Isolated Galaxies

*Krumm, N., Shane, W.W.* **116**, 237

**Radio Galaxies**, see also Galaxies

## The Unsteady Beam

*Nepveu, M.* **105**, 15

## Further Observations of Radio Sources from the BG Survey. I.

The Non-thermal Sources near  $l = 94^\circ$ 

*Mantovani, F., Nanni, M., Salter, C.J., Tomasi, P.* **105**, 176

## Radio and Optical Observations of 9 Nearby Abell Clusters: A262, A347, A569, A576, A779, A1213, A1228, A2162, A2666

*Fanti, C., Fanti, R., Feretti, L., Ficarra, A., Gioia, I.M., Giovannini, G., Gregorini, L., Mantovani, F., Marano, B., Padrielli, L.* **105**, 200

## Compact and Extended Structure in B2 Radio Sources of Intermediate Strength

*Padrielli, L., Kapahi, V.K., Katgert-Merkelijn, J.K.* **106**, 181; **46**, 473

## Upper Limits of a Cosmic Infrared Background Flux as Determined by X- and Gamma-ray Observations of M87

*Schlickeiser, R., Harwit, M.* **107**, 186

## Optical Identification/Flux Density Relationship for Radio Galaxies

*Swarup, G., Subrahmanya, C.R., Venkatakrishna, K.L.* **107**, 190  
Determination of Physical Parameters in the Radio Source 5C 4.81

*Roland, J.* **107**, 267

## The Optical Spectrum of the Radio Galaxy PKS 2152-69

*Marenbach, G., Appenzeller, I.* **108**, 95

Integrated Linear Polarization of Extragalactic Radio Sources at 10.5 GHz ( $\lambda$  2.86 cm). II

*Simard-Normandin, M., Kronberg, P.P., Button, S.* **108**, 416; **48**, 137

## Multifrequency High Resolution Observations of the Large Radio Galaxy B2 1321+31

*Fanti, R., Lari, C., Parma, P., Bridle, A.H., Ekers, R.D., Fomalont, E.B.* **110**, 169

## Radial Velocities of Galaxies Detected in the Arecibo 2380 MHz Survey

*Marano, B., Vettolani, G.* **110**, 183; **48**, 453

## Multifrequency Comparison of the Total Intensity and Polarization Distributions for 3C 31, 3C 66B, and 3C 129

*van Breugel, W.* **110**, 225

## Spectral Index Behaviour of Low Frequency Variable Radio Sources

*Mantovani, F.* **110**, 345

## Radio and X-ray Observations of the Abell 2241 Galaxy Clusters

*Bijleveld, W., Valentijn, E.A.* **111**, 50

## Diffusion of Electrons in Radio Galaxies

*Valtaoja, E.* **111**, 213

## Radio and X-ray Galaxies in Abell 566

*Harris, D.E., Robertson, J.G., Dewdney, P.E., Costain, C.H.* **111**, 299

## Multifrequency Observations of Extended Radio Galaxies V: 3C 31, 3C 33.1, 3C 35, 3C 66B, 3C 129, 3C 130, 3C 223, 3C 310, 3C 390.3 and 4C 48.29

*Van Breugel, W., Jägers, W.* **112**, 180; **49**, 529

## Nonlinear Shear Instabilities in an Infinite Slab

*Nepveu, M.* **112**, 223

## Spectral Index - Flux Density Relation for Extragalactic Radio Sources Found in Metre-wavelength Surveys

*Gopal-Krishna, Steppe, H.* **113**, 150

## Statistical Correction of Projection of Radio-sources on the Sky and Application to the Apparent Size-Redshift and Linear Size-Line Width Relation

*Nottale, L.* **113**, 223

## Structure of Dynamics of Supersonic Jets

*Norman, M.L., Smarr, L., Winkler, K.-H. A., Smith, M.D.* **113**, 285

## On the Interpretation of Optically Thin Synchrotron Spectra

*Pineault, S.* **114**, 177

## The Influence of Buoyancy on the Stability of Jets

*Achterberg, A.* **114**, 233

## How Well is Gas Mixed in Clusters of Galaxies?

*Nepveu, M.* **114**, 337

## Local Coupling of Surface MHD Waves with Kinetic Alfvén Waves in Jets

*Bodo, G., Ferrari, A.* **114**, 394

## Merlin Observations of Compact Sources with Very Steep Radio Spectra

*Roland, J., Véron, P., Stannard, D., Muxlow, T.* **116**, 60

**Radio Radiation**, ... **Sources**, see under the different Objects, and Galaxies - Radio Observation, Maser, Radio Frequency Lines, Radio StarsFurther Observations of Radio Sources from the BG Survey. I. The Non-thermal Sources near  $l = 94^\circ$ 

*Mantovani, F., Nanni, M., Salter, C.J., Tomasi, P.* **105**, 176

## The Distribution of Thermal and Nonthermal Radio Continuum Emission of M31

*Beck, R., Gräbe, R.* **105**, 192

## Radio Observations of the Giant Quasar 4C 34.47

*Jägers, W., van Breugel, W., Miley, G.K., Schilizzi, R.T., Conway, R.G.* **105**, 278

## Arc Structures in the Jovian Decametric Emission Observed from the Earth and from Voyager

*Barrow, C.H., Lecacheux, A., Leblanc, Y.* **106**, 94

## A 408 MHz All-sky Continuum Survey. II. The Atlas of Contour Maps

*Haslam, C.G.T., Salter, C.J., Stoffel, H., Wilson, W.E.* **106**, 181; **47**, 1

## G33.2-0.6, an Old Supernova Remnant with a Spectral Break

*Reich, W.* **106**, 314

## Radio Emission from Young Stars

*Felli, M., Gahm, G.F., Harten, R.H., Liseau, R., Panagia, N.* **107**, 354

## Results of a Radio Survey for New Compact H II Regions

*Wink, J.E., Altenhoff, W.J., Mezger, P.G.* **108**, 227

## A Continuum Study of Galactic Radio Sources in the Constellation of Monoceros

*Graham, D.A., Haslam, C.G.T., Salter, C.J., Wilson, W.E.* **109**, 145



# A Radio Continuum Survey of the Northern Sky at 1420 MHz – Part I

*Reich, W.* **110**, 180; **48**, 219

# The Structure of Orion B (NGC 2024): A Recombination Line and Continuum Map

*Krügel, E., Thum, C., Martin-Pintado, J., Pankonin, V.* **110**, 181; **48**, 345

# A Search for Radio Halo Emission at 430 MHz in 72 Rich Clusters of Galaxies

*Hanisch, R.J.* **111**, 97

# Diffusion of Electrons in Radio Galaxies

*Valtaoja, E.* **111**, 213

# A Narrow-band Splitting at the Jovian Decametric Cutoff Frequency

*Leblanc, Y., Rubio, M.* **111**, 284

# Optical Identification of the Radio Source 0104–408

*Walter, H.G., West, R.M.* **111**, 357

# Spectral Index – Flux Density Relation for Extragalactic Radio Sources Found in Metre-wavelength Surveys

*Gopal-Krishna, Steppe, H.* **113**, 150

# Radio Measurements in the Fields of Gamma-ray Sources. I. CG 195+04

*Sieber, W., Schlickeiser, R.* **113**, 314

# A Rapid Outburst of BL Lac at 2.72 GHz

*Reich, W., Steffen, P.* **113**, 348

# Evolutionary Luminosity Functions of Extragalactic Sources Driven by Gravitational Power

*Cavaliere, A., Giallongo, E., Messina, A., Vagnetti, F.* **114**, L1

# On the Interpretation of Optically Thin Synchrotron Spectra

*Pineault, S.* **114**, 177

# Radio Observations at 14.7 GHz of Southern Planetary Nebulae

*Milne, D.K., Aller, L.H.* **115**, 217; **50**, 209

# The Quasar B2 1320+29

*Feretti, L., Giovannini, G., Parma, P.* **115**, 423

# Radio Observations of Small Diameter Sources in the Field of the Supernova Remnant S147

*Fürst, E., Reich, W., Beck, R., Hirth, W., Angerhofer, P.E.* **115**, 428

# Merlin Observations of Compact Sources with Very Steep Radio Spectra

*Roland, J., Véron, P., Stannard, D., Muxlow, T.* **116**, 60

# Common Properties of Clusters of Galaxies Containing Radio Halos and Implications for Models of Radio Halo Formation

*Hanisch, R.J.* **116**, 137

# High Frequency Radio Continuum Observations of Bright Spiral Galaxies

*Gioia, I.M., Gregorini, L., Klein, U.* **116**, 164

# Radio Radiation, Solar, see Solar Radio Radiation

# Radio Stars

# Radio Observations of Pre-main-sequence Stars: Results and Interpretation

*Bertout, C., Thum, C.* **107**, 368

# On the Discrepancy Between the Optical and Radio Position of Tauri

*de Vegt, C.* **109**, L15

# Comparison of Precise Optical and Radio Positions for Cyg OB2 Members and P Cyg

*de Vegt, C.* **109**, 282

# Has P Cygni Generated a Shock Front Which Emits Nonthermal Radiation?

*Wendker, H.J.* **116**, L1

# The Connection of a Catalogue of Stars with an Extragalactic Reference Frame

*Froeschlé, M., Kovalevsky, J.* **116**, 89

# Radio Telescopes, see also Instruments

# Brightness Temperature Calibration for 21-cm Line Observations

*Kalberla, P.M.W., Mebold, U., Reif, K.* **106**, 190

# Telescope Beam Characteristics and Temperature Scale of the Maryland-Green Bank 21-cm Line Survey

*Westerhout, G., Mader, G.L., Harten, R.H.* **111**, 212; **49**, 137

# The Maryland-Green Bank Galactic 21-cm Line Survey

*Westerhout, G., Wendlandt, H.-U.* **111**, 212; **49**, 143

# Inventory of Major Operational and Planned Ground-based Astronomical Telescopes of the Countries Represented in the European Science Foundation (Second Edition, 1982)

*European Science Foundation* **115**, 216; **50**, 187

# Rayleigh Scattering, see Scattering

# Recombination Lines, see Radio Frequency Lines: Recombination Lines

# Red Stars, see also flare Stars

# Reddening, see Interstellar Absorption and Extinction

# Redshift, see also Hubble Constant

# Quasar-generating Superclusters: An Explanation for a Clumpy Quasar Sky?

*de Ruiter, H.R., Zuiderwijk, E.J.* **105**, 254

# The Periodicity in the Distribution of Quasar Redshifts and the Density Perturbations in the Early Universe

*Fang, L.-Z., Chu, Y.-Q., Cao, Ch.* **106**, 287

# A Table of Redshifts for Abell Clusters

*Sarazin, C.L., Rood, H.J., Struble, M.F.* **108**, L7

# Direct Measurement of Cluster Expansion for Nearby Galaxy Clusters

*Kaastra, J.S.* **109**, L5

# Perturbation of the Magnitude–Redshift Relation in an Inhomogeneous Relativistic Model: The Redshift Equations

*Nottale, L.* **110**, 9

# The Hydra I Cluster of Galaxies. A Unique Case of Membership Definition

*Richter, O.-G., Materne, J., Huchtmeier, W.K.* **111**, 193

# Redshifts of Parent Galaxies of Supernovae

*Barbon, R., Capaccioli, M., West, R.M., Barbier, R.* **111**, 210; **49**, 73

# Further Investigations on Possible Correlations Between QSOs and the Lick Catalogue of Galaxies

*Nieto, J.-L., Seldner, M.* **112**, 321

# The South West Extension of the Perseus Supercluster

*Focardi, P., Marano, B., Vettolani, G.* **113**, 15

# The Cosmic Density Wave and Its Observable Vestige

*Liu, Y.-Z.* **113**, 192

# Spectroscopic Observations of Thirteen Optically-selected QSOs in a Large Field Centred Around NGC 5334

*Surdej, J., Swings, J.P., Arp, H., Barbier, R.* **114**, 182

# Perturbation of the Magnitude – Redshift Relation in an Inhomogeneous Relativistic Model. II. Correction to the Hubble Law Behind Clusters

*Nottale, L.* **114**, 261

# Null Influence of Possible Local Extragalactic Perturbations on Tests of Redshift–Distance Laws

*Nicoll, J.F., Segal, I.E.* **115**, 398

**Reflection Nebulae**

- The Kinematical Structure of the Bipolar Nebula AFGL 618  
*Carsenty, U., Solf, J.* **106**, 307

**Relativistic Astrophysics**, see also Gravitation and under the different Objects

**Relativistic Particles**

- On the Time Scales of the Pair Production Processes in Astrophysics  
*Zdziarski, A.A.* **110**, L7

**Resonance Lines**, see also Polarization, Stellar Chromosphere

- Escape Probabilities, Mean Number of Scatterings and Net Radiative Bracket for Resonance Lines  
*Frisch, H.* **114**, 119  
Non-LTE Resonance Line Polarization with Partial Redistribution Effects  
*Rees, D.E., Saliba, G.J.* **115**, 1

**Ring Galaxies**

- A New Ring Galaxy in Canes Venatici  
*Brosch, N.* **112**, 388

**Roche Lobe**, see also X-ray Binaries

**Rotation**, see also galactic Rotation, stellar Rotation

- On the Angular Momentum of Colliding Interstellar Clouds  
*Horedt, G.P.* **106**, 29  
Density Scaling of the Angular Momentum Versus Mass Universal Relationship  
*Carrasco, L., Roth, M., Serrano, A.* **106**, 89  
Rotation and Mass of NGC 672 and IC 1727 (Text in French)  
*Carozzi-Meyssonier, N.* **106**, 379; **47**, 237  
On the Compatibility of Thermal and Hydrostatic Equilibrium in Thin Radiative Accretion Disks  
*Kippenhahn, R., Thomas, H.-C.* **114**, 77  
The Detection of Extranuclear Emission Lines in the Seyfert Galaxies Mk 10 and Mk 79  
*Schulz, H.* **115**, 209

**RR Lyrae Stars**

- The Period and Photometry of BC Draconis  
*Szabados, L., Stobie, R.S.* **107**, 415; **47**, 541

**RS Canum Venaticorum Binaries**

- Evidence of Variable Migration Rate and a Past Direction Reversal of the RS CVn Wave-like Distortion  
*Blanco, C., Catalano, S., Marilli, E., Rodonò, M.* **106**, 311  
The Variable Light Curve of BH Virginis  
*Hoffmann, M.* **107**, 415; **47**, 561  
Model Chromospheres of RS CVn Stars: Balmer Line Profiles in  $\lambda$  Andromedae  
*Mullan, D.J., Cram, L.E.* **108**, 251  
Effect of Spots on a Star's Radius and Luminosity  
*Spruit, H.C.* **108**, 348  
The Flow of Heat near a Starspot  
*Spruit, H.C.* **108**, 356

**Runaway Stars**

- The Detection of Compact Companions in OB-runaway Stars  
*Sybesma, C.H.B., de Loore, C.* **111**, 229

The Theoretical Expected Galactic Distribution of WR Runaway Stars

*Vanbeveren, D.* **113**, 205

The Fastest Runaway Wolf-Rayet Star of Population I in the Galaxy, 209 BAC: Evidence for a Low Mass Companion

*Moffat, A.F.J., Lamontagne, R., Seggewiss, W.* **114**, 135

The Theoretically Expected X-ray Luminosity and the Binary Nature of Wolf-Rayet Runaway Stars

*Vanbeveren, D., Van Rensbergen, W., de Loore, C.* **115**, 69

**S Stars**, see also Late Type Stars

**Satellites of Planets**

New Constants for the Sampson-Lieske Theory of the Galilean Satellites of Jupiter

*Arlot, J.-E.* **107**, 305

Apparent Thickness and Scattering Properties of Saturn's Rings from March 1980 Observations

*Sicardy, B., Lecacheux, J., Laques, P., Despiou, R., Auge, A.* **108**, 296

415  $\mu$ m Brightness Temperature of Titan

*Loewenstein, R.F., Hildebrand, R.H.* **110**, L18

Results of the PHEMU79 Observation Campaign of Mutual Phenomena of the Galilean Satellites of Jupiter in 1979 (Text in French)

*Arlot, J.-E., Bernard, A., Bouchet, P., Dagouillon, J., Dourneau, G., Figer, A., Helmer, G., Lecacheux, J., Merlin, Ph., Meyer, C., Mianes, P., Morando, B., Naves, D., Rousseau, J., Soulié, G., Terzan, A., Thuillot, W., Vapillon, L., Wlérick, G.* **111**, 151

Observation of 2 Mutual Events Involving the Satellites of Saturn in April 1980

*Dourneau, G.* **112**, 73

Orbital Elements of Nereid from New Observations

*Veillet, C.* **112**, 277

**Saturn**

"Flip-flop" of Electric Potential of Dust Grains in Space

*Meyer-Vernet, N.* **105**, 98

Apparent Thickness and Scattering Properties of Saturn's Rings from March 1980 Observations

*Sicardy, B., Lecacheux, J., Laques, P., Despiou, R., Auge, A.* **108**, 296

415  $\mu$ m Brightness Temperature of Titan

*Loewenstein, R.F., Hildebrand, R.H.* **110**, L18

Observation of 2 Mutual Events Involving the Satellites of Saturn in April 1980

*Dourneau, G.* **112**, 73

Improvement of the Theories of Jupiter and Saturn by Harmonic Analysis (in French)

*Simon, J.L., Francou, G.* **114**, 125

**Scattering**

Double Compton Process and the Spectrum of the Microwave Background

*Danese, L., De Zotti, G.* **107**, 39

Upper Limits of a Cosmic Infrared Background Flux as Determined by X- and Gamma-ray Observations of M87

*Schlickeiser, R., Harwit, M.* **107**, 186

The Hard X-ray Spectrum of Cygnus X-1

*Steinle, H., Voges, W., Pietsch, W., Reppin, C., Trümper, J., Kendziorra, E., Staubert, R.* **107**, 350

**Radiative Transfer: Analytic Solution of Difference Equations***Kalkofen, W., Wehrse, R. 108, 42***Apparent Thickness and Scattering Properties of Saturn's Rings from March 1980 Observations***Sicardy, B., Lecacheux, J., Laques, P., Despiau, R., Auge, A. 108, 296***On the Phase Matrix Basic to the Scattering of Polarized Light***Siewert, C.E. 109, 195***Diffusion of Keplerian Motions by a Stochastic Force. I. A General Formalism***Barge, P., Pellat, R., Millet, J. 109, 228***Monte Carlo Study of Highly Polarized Cool Stars***Daniel, J.-Y. 111, 58***Diffusion of Keplerian Motions by a Stochastic Force. II. Lorentz****Scattering of Interplanetary Dusts***Barge, P., Pellat, R., Millet, J. 115, 8***A Scattering Model for the Zodiacal Light Particles***Schiffer, R., Thielheim, K.O. 116, 1***Scintillation****Solar Site-testing Campaign of JOSO on the Canary Islands in 1979***Brandt, P.N., Wöhl, H. 109, 77***Causal Relationship Between Pulsar Long-term Intensity Variations and the Interstellar Medium***Sieber, W. 113, 311***Seeing, see also Earth Atmosphere****Lower Atmosphere and Solar Seeing: an Experiment of Simultaneous Measurements of Nearby Turbulence by Thermal Radiosondes, by Angle of Arrival Statistics and Image Motion Observation***Borgnino, J., Ceppatelli, G., Ricort, G., Righini, A. 107, 333***Solar Site-testing Campaign of JOSO on the Canary Islands in 1979***Brandt, P.N., Wöhl, H. 109, 77***Interferometric Measurements of Stellar Positions in the Infrared***Sutton, E.C., Subramanian, S., Townes, C.H. 110, 324***Seeing-independent Definitions of the Solar Limb Position***Brown, T.M. 116, 260***Selected Areas****High Angular Resolution uvby $\beta$  Observations of Stars Earlier than GO in the Intermediate and Low Latitude Areas SA 128 and SA 156***Knude, J. 111, 210; 49, 69***Semidetached Systems, see Close Binaries****Semiregular Variables, see Variables****Seyfert Galaxies, see also Markarian Galaxies****The Geometry of the Seyfert Nucleus in NGC 4151 Revisited. I. Cloudy Structure from the [O III] Line Profile Analysis***Pelat, D., Alloin, D. 105, 335***Hydrogen Line Spectrum in Quasars. II. A Critical Discussion of Model Calculations for the Broad Line Region***Collin-Souffrin, S., Dumont, S., Tully, J. 106, 362***Mid-infrared Observations of Seyfert 1 and Narrow-line X-ray Galaxies***Glass, I.S., Moorwood, A.F.M., Eichendorf, W. 107, 276***The Radio Structure of the Nuclear Region of NGC 1365***Sandqvist, A., Jörsäter, S., Lindblad, P.O. 110, 336***Radio and X-ray Galaxies in Abell 566***Harris, D.E., Robertson, J.G., Dewdney, P.E., Costain, C.H. 111, 299***Forbidden Emission Lines of Fe VII***Nussbaumer, H., Storey, P.J. 113, 21***The Detection of Extranuclear Emission Lines in the Seyfert Galaxies Mk 10 and Mk 79***Schulz, H. 115, 209***A 1415 MHz Survey of Seyfert and Related Galaxies. III***Wilson, A.S., Meurs, E.J.A. 115, 217; 50, 217***Shell Stars, see also Be Stars, Circumstellar Matter****[Ni II] Emission Under Nebular Conditions***Nussbaumer, H., Storey, P.J. 110, 295***Properties and Nature of Be and Shell Stars. 7 B.88 Her - An Important Clue to Understanding the Be Phenomenon?***Doazan, V., Harmanec, P., Koubsky, P., Krpata, J., Zdarsky, F. 115, 138***Shock Waves****Gravitationally Driven Instabilities in Shock Compressed Gas Layers***Welter, G.L. 105, 237***Profile Variations of the Si III (4452 and 4568) Lines and Mg II (4481) Doublet in  $\gamma$  Peg***Le Contel, J.-M., Morel, P.-J. 107, 406***On the Theory of Shock-heated Atmospheres. III. Discussion of the Formalism and Application to Stellar Coronae***Souffrin, P. 109, 205***Westerbork Observations of H I Absorption in the Direction of Sgr A***Schwarz, U.J., Ekers, R.D., Goss, W.M. 110, 100***Solar Emission Lines Produced in the Wake of a Shock Wave. II. Line Profiles***Flower, D.R., Pineau des Forêts, G. 110, 163***Preinjection of Cosmic Rays and Magnetic Chemically Peculiar Stars***Havnes, O. 110, 203***X-ray and UV-emission from Supernova Shock Waves in Stellar Winds***Fransson, C. 111, 140***The Structure of Cosmic Ray Shocks***Axford, W.I., Leer, E., McKenzie, J.F. 111, 317***Shock Fronts in Wide Binary Systems***Huang, R.Q., Weigert, A. 112, 281***Shock Induced Star Formation: The Effects of Magnetic Fields and Turbulence***Welter, G.L., Nepveu, M. 113, 277***Non-linear Theory of Cosmic Ray Shocks Including Self-generated Alfvén Waves***McKenzie, J.F., Völk, H.J. 116, 191***Shock Fronts Produced by Stellar Winds in the Interstellar Gas***Huang, R.Q., Weigert, A. 116, 348***Silicon Stars, see Peculiar A Stars**

**Site Testing**

Lower Atmosphere and Solar Seeing: an Experiment of Simultaneous Measurements of Nearby Turbulence by Thermal Radiosondes, by Angle of Arrival Statistics and Image Motion Observation

*Borgnino, J., Ceppatelli, G., Ricort, G., Righini, A.* **107**, 333

Solar Site-testing Campaign of JOSO on the Canary Islands in 1979

*Brandt, P.N., Wöhl, H.* **109**, 77

**Sky Background**, see Background Radiation, Earth Atmosphere

**Solar Activity**, see also Bursts, Filaments, Solar Flares, Solar Prominences

Stability of Toroidal Flux Tubes in Stars

*Spruit, H.C., van Ballegooijen, A.A.* **106**, 58

About the Relation Between Radio and Soft X-ray Emission in Case of Very Weak Solar Activity

*Fürst, E., Benz, A.O., Hirth, W.* **107**, 178

Active Picture of Rotation

*Ando, H.* **108**, 7

Blowing up of Two-dimensional Magnetohydrostatic Equilibria by an Increase of Electric Current or Pressure

*Heyvaerts, J., Lasry, J.M., Schatzman, M., Witomsky, P.* **111**, 104

Comparison Between Two Trigonometric Models for the Long-period Variations in the Wolf Numbers and in the Length of Day

*Picchio, G.* **111**, 326

Erratum: Stability of Toroidal Flux Tubes in Stars

*Spruit, H.C., van Ballegooijen, A.A.* **113**, 350

A Comparative Spectral Analysis of the Earth's Rotation and the Solar Activity

*Carta, F., Chlistovsky, F., Manara, A., Mazzoleni, F.* **114**, 388

**Solar Atmosphere**, see also Oscillations, Pulsations, Solar Chromosphere, ... Corona, ... Granulation, ... Photosphere

The Solar Spectrum of O IV, Including Photoexcitation by Fe IX 171.07 Å

*Kastner, S.O.* **108**, 361

A Selective Solar Irradiance Spectrometer

*Oranje, B.J.* **109**, 32

Rocket Photographs of Fine Structure and Wave Patterns in the Solar Temperature Minimum

*Bonnet, R.M., Bruner, M., Acton, L.W., Decaudin, M., Foing, B.* **111**, 125

Transformation of Magnetogravitational Waves in the Solar Atmosphere

*Zhugzhda, Y.D., Dzhalilov, N.S.* **112**, 16

Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. V. The Theory of Magneto-Acoustic-Gravity Oscillations

*Leroy, B., Schwartz, S.J.* **112**, 84

Propagation of Waves in an Atmosphere in the Presence of a Magnetic Field. VI. Application of Magneto-Acoustic-Gravity Mode Theory to the Solar Atmosphere

*Schwartz, S.J., Leroy, B.* **112**, 93

Non-LTE Resonance Line Polarization with Partial Redistribution Effects

*Rees, D.E., Saliba, G.J.* **115**, 1

**Solar Chromosphere**, see also Solar Atmosphere, Solar Flares, Transition Zone

Heating of Stellar Chromospheres when Magnetic Fields are Present

*Ullmschneider, P., Stein, R.F.* **106**, 9

Detection of a 192 s Oscillatory Component on the Sun at 8.6 mm Wavelength

*Bocchia, R.* **106**, 79

On the Widths of the Ca II K Emission in Late-type Stars

*Severino, G.* **109**, 90

Mass Motions in the Solar Chromosphere and Transition Zone

*Mein, P., Simon, G., Vial, J.C., Shine, R.A.* **111**, 136

On Solar Hydrogen Lines in the Far-infrared and Submillimeter Spectrum

*Hoang-Binh, D.* **112**, L3

Modification of the Ionization Balance of the Upper Chromosphere Due to XUV Irradiation in Flares

*Chambe, G.* **113**, 31

Dynamics of the Eruptive Prominence of 6 May 1980 and Its Relationship to the Coronal Transient

*Mein, N., Schmieder, B., Simon, G., Tandberg-Hanssen, E., Wu, S.T.* **114**, 192

Electron Densities from the O IV  $\lambda$  1401 Multiplet

*Nussbaumer, H., Storey, P.J.* **115**, 205

Measurements of Solar Transition Zone Velocities and Line Broadening Using the Ultraviolet Spectrometer and Polarimeter on the Solar Maximum Mission

*Simon, G., Mein, P., Vial, J.C., Shine, R.A., Woodgate, B.E.* **115**, 367

**Solar Corona**, see also Bursts, Solar Atmosphere, Solar Radio Radiation, Stellar Coronae, Transition Zone

Diagnostic of Coronal Heating Processes Based on the Emission Measure of UV Lines

*Torricelli-Ciamponi, G., Einaudi, G., Chiuderi, C.* **105**, L1

On the Thermal Stability of Hot Coronal Loops: The Coupling Between Chromosphere and Corona

*Kuin, N.P.M., Martens, P.C.H.* **108**, L1

Chromospheric Effects of XUV Radiation Emitted During Solar Flares

*Machado, M.E., Hénoux, J.C.* **108**, 61

Solar Emission Lines Produced in the Wake of a Shock Wave. II. Line Profiles

*Flower, D.R., Pineau des Forêts, G.* **110**, 163

A Diffuse Component of Solar Electron Streams as a Possible Source of Decametric and Hectometric Continuum

*Levin, B.N.* **111**, 71

An Association Between Coronal Structures and Type III Burst Sources

*Trotter, G., Pick, M., House, L., Illing, R., Sawyer, C., Wagner, W.* **111**, 306

Diagnostic of Coronal Magnetic Fields from Microwave Polarization Reversal

*Bandiera, R.* **112**, 52

Two Colour Photometry and Polarimetry of the Solar Corona of 16 February 1980

*Dürst, J.* **112**, 241

Observed Polarization of the Fe XIV 5303 Coronal Emission Line

*Arnaud, J.* **112**, 350

On Cool Coronal Loops

*Martens, P.C.H., Kuin, N.P.M.* **112**, 366

The Thermal Stability of Solar Coronal Loops in Hydrostatic Equilibrium

*Wragg, M.A., Priest, E.R.* **113**, 269



## Resonant Electrodynamics Heating and the Thermal Stability of Coronal Loops

Martens, P.C.H., Kuperus, M. **113**, 324

## Dynamics of the Eruptive Prominence of 6 May 1980 and Its Relationship to the Coronal Transient

Mein, N., Schmieder, B., Simon, G., Tandberg-Hanssen, E., Wu, S.T. **114**, 192

## The Influence of Divergent Geometries on Stellar Winds

Kuin, N.P.M., Hearn, A.G. **114**, 303

## Magnetic Field in Solar Prominences Measured with a New Spectrally Scanning Magnetograph

Kim, I.S., Koutchmy, S., Nikolsky, G.M., Stellmacher, G. **114**, 347

## Coronal Loop Transients in Streamer Configurations

Steinolfson, R.S. **115**, 39

## Coronal Response to a Solar Event in a Corona Evacuated by a Prior Transient

Steinolfson, R.S. **115**, 50

## Measurements of Solar Transition Zone Velocities and Line Broadening Using the Ultraviolet Spectrometer and Polarimeter on the Solar Maximum Mission

Simon, G., Mein, P., Vial, J.C., Shine, R.A., Woodgate, B.E. **115**, 367

## Visible Light Observations of a Dense Plasmoid Associated with a Moving Type IV Solar Radio Burst

Stewart, R.T., Dulk, G.A., Sheridan, K.V., House, L.L., Wagner, W.J., Sawyer, C., Illing, R., Wagner, W. **116**, 217

## Coronal Line Intensities for Ions with Fine-structured Ground States: Si X

Saha, H.P., Treffitz, E. **116**, 224

## The Analysis of Fe XIV 5303 Coronal Emission-line Polarization Measurements

Arnaud, J. **116**, 248

## Solar Cycle, see Solar Activity

## Solar Evolution, see Stellar Evolution, Sun

## Solar Flares

## Analysis of the Optical Spectra of Solar Flares. I. The Flare of April 30, 1976

Acampa, E., Falciani, R., Sambuco, A.M., Smaldone, L.A. **107**, 414; **47**, 485

## Radio Imaging of Solar Flares Using the Very Large Array: New Insights into Flare Process

Kundu, M.R., Schmahl, E.J., Velusamy, T., Vlahos, L. **108**, 188

## Impulsive and Gradual Hard X-ray Sources in a Solar Flare

Vilmer, N., Kane, S.R., Trotter, G. **108**, 306

## Solar Granulation

## Numerical Simulations of the Solar Granulation. I. Basic Equations and Methods

Nordlund, Å. **107**, 1

## On the Magnitude and the Height Dependence of the Granular Vertical Flow Velocity

Bässgen, M., Deubner, F.-L. **111**, L1

## Rocket Photographs of Fine Structure and Wave Patterns in the Solar Temperature Minimum

Bonnet, R.M., Bruner, M., Acton, L.W., Decaudin, M., Foing, B. **111**, 125

## Solar Neighborhood

## The Lick Galaxy Counts, the Local Interstellar Absorption and Molecular Hydrogen

Strong, A.W., Lebrun, F. **105**, 159

Space Density of Stars and Interstellar Extinction near  $\eta$  and  $\chi$  Persei (Perseus I)

Becker, W., Wooden II, W.H. **106**, 179; **46**, 347

## COS-B Gamma-ray Measurements, Cosmic Rays and the Local Interstellar Medium

Lebrun, F., Bignami, G.F., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Mayer-Hasselwander, H.A., Paul, J.A., Strong, A.W., Wills, R.D. **107**, 390

Photometric Parallaxes of Nearby Main-Sequence Stars with Annual Proper Motion of  $0''.7$  or More Derived from Eggen's B, V and R, I Data

Gliese, W. **107**, 413; **47**, 471

## High Order Momenta of the Local Stellar Velocity Distribution

Núñez, J., Torra, J. **110**, 95

## On a Model of Local Gas Related to Gould's Belt

Olano, C.A. **112**, 195

An Odd Behavior of Nearby Stars Velocity Components in the Direction  $l = 330^\circ$   $b = 0^\circ$ 

Menge de Freitas, S. **112**, 395; **49**, 687

## Contribution to the Study of Composite Spectra. III. Spectrum Binaries: Intermediate Class Between Visual and Spectroscopic Binaries? (Text in French)

Carquillat, J.M., Nadal, R., Ginestet, N., Pedoussaut, A. **115**, 23

## The Local Interstellar Medium as Traced by Gamma Rays

Strong, A.W., Bignami, G.F., Bloemen, J.B.G.M., Buccheri, R., Caraveo, P.A., Hermesen, W., Kanbach, G., Lebrun, F., Mayer-Hasselwander, H.A., Paul, J.A., Wills, R.D. **115**, 404

## Ultraviolet Spectrum of the Sky Background at Different Galactic Latitudes

Zvereva, A.M., Severny, A.B., Granitzky, L.V., Hua, C.T., Cruwellier, P., Courtès, G. **116**, 312

## Solar Oscillations

## Detection of a 192 s Oscillatory Component on the Sun at 8.6 mm Wavelength

Bocchia, R. **106**, 79

## The Solar Structure and the Low Frequency Five-minute Oscillation. I

Gabriel, M., Scuflaire, R., Noels, A. **110**, 50

## New Features of the Oscillation Spectrum of the Sun

Kneer, F., Newkirk, G., Jr., von Uexküll, M. **113**, 129

## The Solar Structure and the Low Frequency Five-minute Oscillation. II

Scuflaire, R., Gabriel, M., Noels, A. **113**, 219

## Spectral Line Transfer Effects in Lambda-meter Measurements of Solar Short-period Oscillations

Deubner, F.-L., Durrant, C.J., Kaltenbacher, J. **114**, 85

## Angular Velocity of Sunspots Along the Butterfly Diagram

Godoli, G., Mazzucconi, F. **116**, 188

## Solar Photosphere, see also Solar Atmosphere, Solar Granulation

## The Structure of the Solar Magnetic Field Below the Photosphere.

## I. Adiabatic Flux Tube Models

van Ballegoijen, A.A. **106**, 43

## Table of Solar Diatomic Molecular Lines. IV. Spectral Range: 7600-8100

Boyer, R., Sotirovski, P., Harvey, J.W. **106**, 181; **47**, 145

On the Establishment of Internally Consistent Solar Scales of Oscillator Strengths and Abundances of Chemical Elements. III. Oscillator Strengths Obtained from Equivalent Widths of 360 Fe I Lines

*Gurtovenko, E.A., Kostik, R.I.* **106**, 378; **47**, 193

Numerical Simulations of the Solar Granulation. I. Basic Equations and Methods

*Nordlund, Å.* **107**, 1

Infrared Bands of  $C_2$  in the Solar Photospheric Spectrum

*Brault, J.W., Delbouille, L., Grevesse, N., Roland, G., Sauval, A.J., Testerman, L.* **108**, 201

An Atlas of Theoretical Stokes Profiles for Solar Disk Observations

*Arena, P., Landi Degl'Innocenti, E.* **108**, 416; **48**, 81

Absolute Measurement of the Bisector of the 6301.5091 Fe I Line in the Solar Spectrum

*Cavallini, F., Ceppatelli, G., Righini, A.* **109**, 233

On the Magnitude and the Height Dependence of the Granular Vertical Flow Velocity

*Bässgen, M., Deubner, F.-L.* **111**, L1

Velocity Fields and Spectral Line Asymmetries: A Linearized Analytical Approach to the Theory of the Line Bisector in a Milne-Eddington Atmosphere

*Buonaura, B., Caccin, B.* **111**, 113

The Influence of Temperature Inhomogeneities in the Solar Atmosphere on Abundance Determinations

*Hermesen, W.* **111**, 233

Vertical Structure of the Solar Photosphere II. The Small-scale Velocity Field

*Durrant, C.J., Nesis, A.* **111**, 272

Analysis of Fe I Lines ( $0.00 \text{ eV} < \chi < 12.6 \text{ eV}$ ) in the Solar Spectrum Using Improved Damping Constants and Accurate Oscillator Strengths: Test of a Solar Model Atmosphere

*Simmons, G.J., Blackwell, D.E.* **112**, 209

Spectral Line Transfer Effects in Lambda-dameter Measurements of Solar Short-period Oscillations

*Deubner, F.-L., Durrant, C.J., Kaltenbacher, J.* **114**, 85

Empirical NLTE Analyses of Solar Spectral Lines. III. Iron Lines Versus LTE Models of the Photosphere

*Rutten, R.J., Kostik, R.I.* **115**, 104

The Asymmetry of Photospheric Absorption Lines. I. An Analysis of Mean Solar Line Profiles

*Kaisig, M., Durrant, C.J.* **116**, 332

**Solar Prominences**, see also Filaments

Dynamics of the Eruptive Prominence of 6 May 1980 and Its Relationship to the Coronal Transient

*Mein, N., Schmieder, B., Simon, G., Tandberg-Hanssen, E., Wu, S.T.* **114**, 192

Magnetic Field in Solar Prominences Measured with a New Spectrally Scanning Magnetograph

*Kim, I.S., Koutchmy, S., Nikolsky, G.M., Stellmacher, G.* **114**, 347

**Solar Radio Radiation**, see also Bursts

Solar Type I Noise Storms and Newly Emerging Magnetic Flux

*Spicer, D.S., Benz, A.O., Huba, J.D.* **105**, 221

Detection of a 192 s Oscillatory Component on the Sun at 8.6 mm Wavelength

*Bocchia, R.* **106**, 79

Search for Harmonic Emission in Solar Type I Radio Bursts

*Jaeggi, M., Benz, A.O.* **107**, 88

About the Relation Between Radio and Soft X-ray Emission in Case of Very Weak Solar Activity

*Fürst, E., Benz, A.O., Hirth, W.* **107**, 178

Radio Imaging of Solar Flares Using the Very Large Array: New Insights into Flare Process

*Kundu, M.R., Schmahl, E.J., Velusamy, T., Vlahos, L.* **108**, 188

Fine Structure near the Starting Frequency of Solar Type III Radio Bursts

*Benz, A.O., Zlobec, P., Jaeggi, M.* **109**, 305

A Diffuse Component of Solar Electron Streams as a Possible Source of Decametric and Hectometric Continuum

*Levin, B.N.* **111**, 71

An Association Between Coronal Structures and Type III Burst Sources

*Trottet, G., Pick, M., House, L., Illing, R., Sawyer, C., Wagner, W.* **111**, 306

Diagnostic of Coronal Magnetic Fields from Microwave Polarization Reversal

*Bandiera, R.* **112**, 52

The Importance of Plasma Effects on Electron-cyclotron Maser-emission from Flaring Loops

*Sharma, R.R., Vlahos, L., Papadopoulos, K.* **112**, 377

Visible Light Observations of a Dense Plasmoid Associated with a Moving Type IV Solar Radio Burst

*Stewart, R.T., Dulk, G.A., Sheridan, K.V., House, L.L., Wagner, W.J., Sawyer, C., Illing, R., Wagner, W.* **116**, 217

**Solar Rotation**

The Sun's Rotation Derived from Sunspots 1970–1979

*Lustig, G.* **106**, 151

Differential Rotation and Meridional Motions of Sunspots from 1874 to 1902

*Arévalo, M.J., Gomez, R., Vázquez, M., Balthasar, H., Wöhl, H.* **111**, 266

Angular Velocity of Sunspots Along the Butterfly Diagram

*Godoli, G., Mazzucconi, F.* **116**, 188

**Solar System**, see Cosmogony

On the Invariable Plane of the Solar System

*Burkhardt, G.* **106**, 133

**Solar Type Stars**

The Sun Among the Stars. V. A Second Search for Solar Spectral Analogs. The Hyades' Distance

*Hardorp, J.* **105**, 120

Models of Stellar Evolution and Their Use in Calibrating Distances and Element Abundances of Stars

*Gehren, T.* **109**, 187

**Solar Wind**

Alfvenic Fluctuations as Asymptotic States of MHD Turbulence

*Grappin, R., Frisch, U., Leorat, J., Pouquet, A.* **105**, 6

Solar Wind Pressure on Interplanetary Dust

*Mukai, T., Yamamoto, T.* **107**, 97

The Influence of Divergent Geometries on Stellar Winds

*Kuin, N.P.M., Hearn, A.G.* **114**, 303

**Speckle Interferometry**

Near-infrared Slit Scans of Molecular Cloud Sources. II

*Dyck, H.M., Staude, H.J.* **109**, 320

**Spectra**, see under the different Objects, and Line Identification, Spectral Classification, Spectroscopy

**Spectral Classification**

An Outline of a Computer Program for Two-dimensional Spectral Classification

*Zekl, H.* **108**, 380

Equivalent Width Measurements in Galactic Supergiant and in Small Magellanic Cloud Star Spectra

*Dubois, P.* **110**, 182; **48**, 375

Erratum: An Outline of a Computer Program for Two-dimensional Spectral Classification

*Zekl, H.* **113**, 178

**Spectral Lines**, see Equivalent Widths, Line ...

**Spectrophotometry**

How to Measure the Sun like a Star

*Tüg, H.* **105**, 395

Picture Gallery: a Structured Presentation of OAO-2 Photometric Data Supported by OAO-2 Spectrophotometric Data and *UBV*, *ANS* and *TD1* Observations

*Koornneef, J., Meade, M.R., Wesselius, P.R., Code, A.D., van Duinen, R.J.* **106**, 381; **47**, 341

On the Linearity of the SWP Camera of the International Ultraviolet Explorer (IUE): A Correction Algorithm

*Holm, A., Bohlin, R.C., Cassatella, A., Ponz, D.P., Schiffer, F.H.* **112**, 341

Spectrophotometry of Peculiar B and A Stars. XII. HD 10783, 56 Tauri, HD 43819, 53 Aurigae, 49 Camelopardalis, HD 64486, HD 147550, HD 184905 and HD 192913

*Adelman, S.J.* **112**, 394; **49**, 663

**Spectroscopic Binaries**, see also Eclipsing Binaries

Duplicity in the Solar Neighborhood. II. Spectroscopic Orbits for Four Bright Stars: HD 21018, HD 30021, HD 158837, and HD 190658

*Lucke, P.B., Mayor, M.* **105**, 318

Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166

*Griffin, R.F., Mayor, M., Gunn, J.E.* **106**, 221

Orbital Motion of the Pulsating Star V644 Her (Text in French)

*Bardin, C., Imbert, M.* **106**, 380; **47**, 319

Magnetic Structure in Cool Stars. IV. Rotation and Ca II H and K Emission of Main-sequence Stars

*Middelkoop, F.* **107**, 31

Contribution to the Study of Composite Spectra. II. A, Am, Ap Spectroscopic Binaries (Text in French)

*Ginestet, N., Jaschek, M., Carquillat, J.M., Pédoussaut, A.* **107**, 215

Spectroscopic Orbits for Two Very High Velocity Halo Stars: HD 111980 and HD 149414

*Mayor, M., Turon, C.* **110**, 241

Mass Loss, Linear Polarization Variability, and Duplicity of the Luminous B2 Supergiant HD 80077

*Knoechel, G., Moffat, A.F.J.* **110**, 263

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism I: Improved Orbital Elements for Binaries in and near NGC 2516

*Giesekeing, F., Karimie, M.T.* **112**, 179; **49**, 497

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism II: Three New Massive Binaries in the Scorpius OB 1 Association

*Giesekeing, F.* **112**, 395; **49**, 673

X-ray Observations of Single-line Spectroscopic Binaries

*Singh, K.P., Naranan, S.* **113**, 167

Contribution to the Study of Composite Spectra. III. Spectrum Binaries: Intermediate Class Between Visual and Spectroscopic Binaries? (Text in French)

*Carquillat, J.M., Nadal, R., Ginestet, N., Pédoussaut, A.* **115**, 23

**Spectroscopy**

An Alternative Procedure for Extracting IUE Low Resolution Spectra

*Crivellari, L., Morossi, C.* **106**, 332

The Solar Spectrum of O IV, Including Photoexcitation by Fe IX 171.07 Å

*Kastner, S.O.* **108**, 361

A Selective Solar Irradiance Spectrometer

*Oranje, B.J.* **109**, 32

A Digital Image Processing Method for Automatic Reduction of Echelle Spectrograms

*Moreno, V., Llorente de Andrés, F., Jiménez, J.* **111**, 260

The Theoretical KLL+KLM Auger Spectrum of the Free Na Atom

*Petrini, D.* **111**, 279

The Maximum Entropy Principle in Two-dimensional Spectral Analysis

*Pendrel, J.V., Smylie, D.E.* **112**, 181

A Stable Acousto-optical Spectrometer for Millimeter Radio Astronomy

*Masson, C.R.* **114**, 270

Terrestrial O<sub>2</sub> Lines Used as Wavelength References: Comparison of Measurements and Model Computations

*Balthasar, H., Thiele, U., Wöhl, H.* **114**, 357

The Width of Echelle Orders in IUE Images as Derived with the Astronomical Image Display and Analysis (AIDA) System in Tübingen

*de Boer, K.S., Preussner, P.-R., Grewing, M.* **115**, 128

Near Infrared Spectroscopy of W 51 IRS-2

*White, G.J., Phillips, J.P., Williams, P.M., Watt, G.D., Richardson, K.J.* **116**, 293

**Spectrum Variables**, see also Delta Scuti Stars and other Types of Variables

**Spicules**, see Solar Chromosphere

**HD 9250**

The Very Small Amplitude Cepheids HD 9250 and HD 14662

*Burki, G., Benz, W.* **115**, 30

**Spiral Arms**, see also Density Waves, Galactic Structure, Galaxies, Spiral Galaxies, Stellar Dynamics and Kinematics

Density Wave Theory for Spiral Galaxies: Effects of Resonant Stars at Corotation

*Bertin, G., Haass, J.* **108**, 265

Arm Width as a Function of Absolute Luminosity for *bc* and *c* Spiral Galaxies

*Block, D.L.* **109**, 336

Can Giant Molecular Clouds Form in Spiral Arms?

*Casoli, F., Combes, F.* **110**, 287

The Distribution of H II Regions in External Galaxies. I

*Considère, S., Athanassoula, E.* **111**, 28

Optical Study of NGC 6946 (in French)

*Peton, A.* **114**, 1

**Spiral Galaxies**, see also Barred Spiral Galaxies, Galaxies, M 31

Studies of Nearly Face-on Spiral Galaxies. I. The Velocity Dispersion of the H I Gas in NGC 3938

*van der Kruit, P.C., Shostak, G.S.* **105**, 351

The Optical Halo Around NGC 253

*Beck, R., Hutschenreiter, G., Wielebinski, R.* **106**, 112

On the Sizes of Rings and Lenses in Disk Galaxies

*Athanassoula, E., Bosma, A., Cr   , M., Schwarz, M.P.* **107**, 101

A Comparative Study of Computational Methods in Cosmic Gas Dynamics

*van Albada, G.D., van Leer, B., Roberts, W.W., Jr.* **108**, 76

The Velocity Field of the Ionized Gas in the Barred Galaxy NGC 925

*Marcelin, M., Boulesteix, J., Court  s, G.* **108**, 134

A Survey of the Distribution of  $\lambda$  2.8 cm Radio Continuum in Nearby Galaxies. II. NGC 6946

*Klein, U., Beck, R., Bucilowski, U.R., Wielebinski, R.* **108**, 176

Plane Galactic Orbits in Stationary and Time-dependent Rotating Bars

*Spreckels, H., Thielheim, K.O.* **108**, 206

Density Wave Theory for Spiral Galaxies: Effects of Resonant Stars at Corotation

*Bertin, G., Haass, J.* **108**, 265

On the Peculiar Motion of the Local Group as Revealed by the  $B-V$  vs.  $HM$  Relation for ScI Galaxies

*Teerikorpi, P.* **109**, 314

Arm Width as a Function of Absolute Luminosity for  $bc$  and  $c$  Spiral Galaxies

*Block, D.L.* **109**, 336

Surface Photometry of Edge-on Spiral Galaxies. IV. The Distribution of Light, Colour, and Mass in the Disk and Spheroid of NGC 7814

*van der Kruit, P.C., Searle, L.* **110**, 79

The Distribution of H II Regions in External Galaxies. I

*Consid  re, S., Athanassoula, E.* **111**, 28

On the Disk Thickness of Spiral Galaxies

*Rohlfs, K., Wiemer, H.-J.* **112**, 116

Study of Spiral Galaxies from 392 New Measurements of 21-cm Line Data

*Bottinelli, L., Goug  enheim, L., Paturel, G.* **113**, 61

The Galaxy NGC 1566: Distribution and Kinematics of the Ionized Gas

*Comte, G., Duquennoy, A.* **114**, 7

V LBI Observations of the Core Sources of a Sample of Spiral Galaxies

*Hummel, E., Fanti, C., Parma, P., Schilizzi, R.T.* **114**, 400

21-cm Line Profiles of 392 Spiral Galaxies

*Bottinelli, L., Goug  enheim, L., Paturel, G.* **114**, 421; **50**, 101

Lifetime of Spurs in Galaxies

*Feitzinger, J.V., Schwerdfeger, H.* **116**, 117

High Frequency Radio Continuum Observations of Bright Spiral Galaxies

*Gioia, I.M., Gregorini, L., Klein, U.* **116**, 164

**Stability**, see also Instability, Pulsations

Vibrational Stability and Critical Mass of He Stars

*Noels, A., Masereel, C.* **105**, 293

The Stability of Inhomogeneous Axisymmetric Stellar Systems

*Wiegandt, R.* **106**, 240

On the Thermal Stability of Hot Coronal Loops: The Coupling Between Chromosphere and Corona

*Kuin, N.P.M., Martens, P.C.H.* **108**, L1

Vibrational Instability of a 3000  $M_{\odot}$  Star and the R 136 a Problem

*Ledoux, P., Noels, A., Boury, A.* **108**, 49

Periodic Orbits in Triaxial Galactic Models

*Magenat, P.* **108**, 89

On the Stability and Evolution of Contact Binaries. I

*Rahnen, T.* **109**, 66

On the Stability of Age-zero Contact Binaries. II

*Hazlehurst, J., H  ppner, W., Refsdal, S.* **109**, 117

Unstable Poloidal Magnetic Fields in Stars

*Van Assche, W., Tayler, R.J., Goossens, M.* **109**, 166

On the Stability of the Triangular Points in the Elliptic Restricted Problem

*Meire, R.* **110**, 152

Super-critical X-ray Luminosities: The Structure and Stability of a Radiation-supported Plasma Layer

*Wang, Y.-M.* **112**, 24

A Manifold of Periodic Orbits in the Planar General Three-body Problem with Equal Masses

*Davoust, E., Broucke, R.* **112**, 305

The Influence of Buoyancy on the Stability of Jets

*Achterberg, A.* **114**, 233

**Star Formation**, see also Stellar Evolution

Centimetre Wavelengths Radio Studies of Clumpy Irregular Galaxies

*Heidmann, J., Klein, U., Wielebinski, R.* **105**, 188

Gravitationally Driven Instabilities in Shock Compressed Gas Layers

*Welter, G.L.* **105**, 237

Bursts of Star Formation in the Galactic Centre

*Loose, H.H., Kr  gel, E., Tutukov, A.* **105**, 342

Hot Stars in the Bulge of M 31: Upper Limit to the Star Formation Rate

*Deharveng, J.M., Joubert, M., Monnet, G., Donas, J.* **106**, 16

The Radio H II Regions Associated with Cep A

*Hughes, V.A., Wouterloot, J.G.A.* **106**, 171

Formaldehyde Emission from DR21(OH)

*Wilson, T.L., Martin-Pintado, J., Gardner, F.F., Henkel, C.* **107**, L10

Radio Observations of Pre-main-sequence Stars: Results and Interpretation

*Bertout, C., Thum, C.* **107**, 368

On the Infrared Sources 1 and 2 in NGC 7538

*Els  sser, H., Birkle, K., Eiroa, C., Lenzen, R.* **108**, 274

Star Formation in the NH<sub>3</sub> Cloud of the NGC 2071 Region

*Calamai, G., Felli, M., Giardinelli, S.* **109**, 123

Radio, Infrared, and Optical Observations of Compact H II Regions. IV. The Nebula S235B

*Krassner, J., Pipher, J.L., Sharpless, S., Herter, T.* **109**, 223

The Initial Mass Function for Young Open Clusters

*Tarrab, I.* **109**, 285

Near-infrared Slit Scans of Molecular Cloud Sources. II

*Dyck, H.M., Staude, H.J.* **109**, 320

Metallicity Effect and  $\lambda$  2.4  $\mu$ m Excess in the Galactic Disk

*Guiderdoni, B., Rocca-Volmerange, B.* **109**, 355

Chemical Evolution of Irregular Galaxies

*Chiosi, C., Matteucci, F.* **110**, 54

Circumstellar Shells in M 17

*Chini, R.* **110**, 332



On the Radial Colour Variation in Nine Young Populous Clusters in the LMC

*Meylan, G.* **110**, 348

New Infrared Objects Towards Southern Type I OH and H<sub>2</sub>O Masers

*Braz, M.A., Epchtein, N.* **111**, 91

Ammonia Observations of Cold Cloud Cores

*Ungerechts, H., Walmsley, C.M., Winniewisser, G.* **111**, 339

Recent Star-forming Activity in the Clumpy Irregular Galaxy NGC 7673

*Duflot-Augarde, R., Alloin, D.* **112**, 257

Near-infrared Sources in the NGC 6334 Molecular Cloud

*Persi, P., Ferrari-Toniolo, M.* **112**, 292

The Mass Function of Blue Stars, the Production Rate of Ly $\alpha$  photons, and the Rate of Star Formation in M 33

*Berkhuijsen, E.M.* **112**, 369

The H II Region - Molecular Cloud Complex Sh 2-269: An Optical and Millimeter Wavelength Study

*Heydari-Malayeri, M., Testor, G., Baudry, A., Lafon, G., de la Noë, J.* **113**, 118

Temperatures and Sizescales of Giant Cloud Complexes in the Spiral Galaxy IC 342

*Ho, P.T.P., Martin, R.N., Ruf, K.* **113**, 155

Formaldehyde Absorption in S 128

*Heske, A., Wendker, H.J.* **113**, 170

Multiaperture Photometry of Galaxies. II. Near-infrared Observations of Six Isolated Objects

*Brosch, N., Isaacman, R.* **113**, 231

Shock Induced Star Formation: The Effects of Magnetic Fields and Turbulence

*Welter, G.L., Nepveu, M.* **113**, 277

Accurate Optical Positions of M 82 Knots

*Bettoni, D., Galletta, G.* **113**, 344

Formaldehyde Absorption Towards OH Sources

*Forster, J.R., Boland, W.* **114**, 109

3D Models for Self-gravitating, Rotating Magnetic Interstellar Clouds

*Dorfi, E.* **114**, 151

On the Difference Between the Initial Mass Function of Single Stars and of Primaries of Binaries

*Vanbeveren, D.* **115**, 65

Infrared Emission and Star Formation in NGC 5253

*Moorwood, A.F.M., Glass, I.S.* **115**, 84

Far Infrared Observations of a Star Forming Region in Serpens

*Nordh, H.L., van Duinen, R.J., Sargent, A.I., Fridlund, C.V.M., Aalders, J.W.G., Beintema, D.* **115**, 308

The Giant Spiral Galaxy M 101. VIII. Star Formation in H I-H II Associations

*Viallefond, F., Goss, W.M., Allen, R.J.* **115**, 373

Lifetime of Spurs in Galaxies

*Feitzinger, J.V., Schwerdtfeger, H.* **116**, 117

CO J=3 $\rightarrow$ 2 and Submillimetre Continuum Observations of Two Molecular Outflow Sources

*Phillips, J.P., White, G.J., Ade, P.A.R., Cunningham, C.T., Richardson, K.J., Robson, E.I., Watt, G.D.* **116**, 130

Radio Continuum Emission: A Tracer for Star Formation

*Klein, U.* **116**, 175

A New Near-infrared Source in the Molecular Cloud Associated with S106

*Hofmann, R.G., Larson, H.P.* **116**, 179

**Stark Effect**, see Line Broadening

**Stars**, see stellar ...

**Stars, individual**

**ADS 3182**

Revised Orbital Elements of Visual Binary Stars ADS 3182 and ADS 3483 (Text in French)

*Scardia, M.* **112**, 179; **49**, 503

**ADS 3483**

Revised Orbital Elements of Visual Binary Stars ADS 3182 and ADS 3483 (Text in French)

*Scardia, M.* **112**, 179; **49**, 503

**AE Phe**

Observations and Analysis of the Light Curve of AE Phoenicis in 1978

*Walter, K.* **109**, 107

**AG Car**

AG Car: A Galactic S Dor Variable

*Wolf, B., Stahl, O.* **112**, 111

**BC Dra**

The Period and Photometry of BC Draconis

*Szabados, L., Stobie, R.S.* **107**, 415; **47**, 541

**BD +10°2179**

Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9°4395 and BD +10°2179

*Hamann, W.-R., Schönberner, D., Heber, U.* **116**, 273

**BD +61154**

On the Balmer Emission Lines of the Herbig Be Star HD 200775

*Köppen, J., Finkenzeller, U., Mundt, R., Beltrametti, M.* **112**, 174

**BD -9°4395**

Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9°4395 and BD +10°2179

*Hamann, W.-R., Schönberner, D., Heber, U.* **116**, 273

**BH Vir**

The Variable Light Curve of BH Virginis

*Hoffmann, M.* **107**, 415; **47**, 561

**BR Mus**

BR Muscae: A New Early-type Contact Binary

*Clariá, J.J., Lapasset, E.* **114**, 419; **50**, 13

**BV Dra**

The Visual Double W UMa Binary BV and BW Draconis

*Geyer, E.H., Hoffmann, M., Karimie, M.T.* **108**, 416; **48**, 85

**Bw Dra**

The Visual Double W UMa Binary BV and BW Draconis  
*Geyer, E.H., Hoffmann, M., Karimie, M.T.* **108**, 416; **48**, 85

**BW Vul**

The Pulsation of the Outer Layers of the Beta Cephei-type Variable BW Vul  
*Burger, M., de Jager, C., van den Oord, G.H.J., Sato, N.* **107**, 320

**CC Com**

Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup  
*Maceroni, C., Milano, L., Russo, G.* **111**, 212; **49**, 123

**CH Cyg**

The Ultraviolet Spectrum of CH Cygni During the Outburst Started in 1977

*Hack, M., Selvelli, P.L.* **107**, 200

Radial Velocities of CH Cygni During the Outburst Started in 1977

*Hack, M., Rusconi, L., Sedmak, G., Engin, S., Yilmaz, N.* **113**, 250

**CI Cyg**

CI Cyg: The Stage of Case C Mass Transfer  
*Iijima, T.* **116**, 210

**CN Ori**

Photometric Observations of CN Orionis  
*Schoembs, R.* **115**, 190

**CoD - 35° 10525**

S CrA and CoD - 35° 10525, Two Bright Young Stars  
*Bertout, C., Carrasco, L., Mundt, R., Wolf, B.* **107**, 412; **47**, 419

**CPD 46°3093**

Fine Analysis of the Intermediate Helium-star CPD-46°3093  
*Groote, D., Kaufmann, J.P., Lange, A.* **114**, 420; **50**, 77

**Cyg OB2 No. 12**

Infrared Energy Distribution of Cyg. OB2 No. 12  
*Persi, P., Ferrari-Toniolo, M.* **111**, L7

**Cyg X-1**

The Hard X-ray Spectrum of Cygnus X-1  
*Steinle, H., Voges, W., Pietsch, W., Reppin, C., Trümper, J., Kendziorra, E., Staubert, R.* **107**, 350

**Cyg X-2**

The X-ray Flux Variations of Cygnus X-2  
*Bonnet-Bidaud, J.M., van der Klis, M.* **116**, 232

**Cyg X3**

The Cycle-to-cycle Variability of Cygnus X-3  
*van der Klis, M., Bonnet-Bidaud, J.M.* **114**, 422; **50**, 129

**EE Aqr**

Revised Photometric Elements of the Eclipsing Binary EE Aquarii  
*Russo, G., Sollazzo, C.* **107**, 197

**ER Ori**

Determination of Parameters of W UMa Systems. II: TW Cet, S Ant, U Peg, Er Ori  
*Russo, G., Sollazzo, C., Maceroni, C., Milano, L.* **106**, 378; **47**, 211

**Feige 66**

The OB Subdwarf Feige 66, a Chemical-composition Twin to HD 149382  
*Baschek, B., Höflich, P., Scholz, M.* **112**, 76

**FG Sge**

The Spectrum of FG Sge in 1979-1980. I.  $\lambda\lambda$  3700-5000 Å  
*Acker, A., Jaschek, M., Gleizes, F.* **110**, 181; **48**, 363

**G 628-40**

Spectroscopic and Photometric Observations of White Dwarfs  
*Koester, D., Weidemann, V.* **108**, 406

**GK Per**

The Old-nova GK Per. II. Optical Outbursts  
*Bianchini, A., Sabbadin, F., Hamzaoglu, E.* **106**, 176

**Gliese 487**

Observations of Flare Star Candidates and Discovery of Flare Activity on the dM4e Star Gliese 487  
*Asteriadis, G.* **113**, 165

**GT Cep**

Revised Photometric Data for Six Eclipsing Binaries  
*Giuricin, G., Mardirossian, F., Mezzetti, M.* **111**, 210; **49**, 89

**GX 339-4**

Discovery of Fast Optical Activity in the X-ray Source GX 339-4  
*Motch, C., Ilwaisky, S.A., Chevalier, C.* **109**, L1

**HD 111980**

Spectroscopic Orbits for Two Very High Velocity Halo Stars: HD 111980 and HD 149414  
*Mayor, M., Turon, C.* **110**, 241

**HD 127493**

Non-LTE Analysis of Subluminous O-Stars. II. The Hydrogen-deficient Subdwarf O-Star HD 127493  
*Simon, K.P.* **107**, 313

**HD 134518**

HD 134518: A Main Sequence Detached Eclipsing Binary  
*Giuricin, G., Mardirossian, F., Mezzetti, M.* **109**, 366

**HD 138403**

Spectral Variations and Evidence for Edge and/or Line Locking Mechanism(s) in the Low-Excitation Planetary Nebula HD 138403  
*Surdej, A., Surdej, J., Swings, J.P.* **105**, 242

The Far-UV Spectrum of the Low-excitation Planetary Nebula HD 138403

*Surdej, J., Heck, A.* **116**, 80

#### HD 14662

The Very Small Amplitude Cepheids HD 9250 and HD 14662

*Burki, G., Benz, W.* **115**, 30

#### HD 149382

Spectral Analysis of the OB Subdwarf HD 149 382

*Baschek, B., Kudritzki, R.P., Scholz, M., Simon, K.P.* **108**, 387

#### HD 149414

Spectroscopic Orbits for Two Very High Velocity Halo Stars: HD 111980 and HD 149414

*Mayor, M., Turon, C.* **110**, 241

#### HD 151910

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism II: Three New Massive Binaries in the Scorpius OB I Association

*Giesekeing, F.* **112**, 395; **49**, 673

#### HD 152107

Spectral Variations of Two Cool Ap Stars: HD 25354 and HD 152107

*Floquet, M.* **112**, 299

#### HD 152333

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism II: Three New Massive Binaries in the Scorpius OB I Association

*Giesekeing, F.* **112**, 395; **49**, 673

#### HD 152590

Radial Velocity Studies of Spectroscopic Binaries with the Objective Prism II: Three New Massive Binaries in the Scorpius OB I Association

*Giesekeing, F.* **112**, 395; **49**, 673

#### HD 152667

UBV-polarimetry of the X-ray Binaries HD 77581 (4U 0900-40), HD 153919 (4U 1700-37) and of HD 152667

*Östreicher, R., Schulte-Ladbeck, R.* **114**, 328

#### HD 153919

On the Short-term Variability of HD 153919 (=4U1700-37=V884 Sco)

*van Paradijs, J., van der Woerd, H.* **113**, 27

UBV-polarimetry of the X-ray Binaries HD 77581 (4U 0900-40), HD 153919 (4U 1700-37) and of HD 152667

*Östreicher, R., Schulte-Ladbeck, R.* **114**, 328

#### HD 160641

Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9°4395 and BD +10°2179

*Hamann, W.-R., Schönberner, D., Heber, U.* **116**, 273

#### HD 199178

Polarimetric Observations of HD 199178 - an FK Comae Type Star

*Pirola, V., Vilhu, O.* **110**, 351

#### HD 200775

On the Spectrum of the Herbig Be Star HD 200775

*Baschek, B., Beltrametti, M., Köppen, J., Traving, G.* **105**, 300

On the Balmer Emission Lines of the Herbig Be Star HD 200775

*Köppen, J., Finkenzeller, U., Mundt, R., Beltrametti, M.* **112**, 174

#### HD 20630

The Sun Among the Stars. VI. The Solar Analog HD 44594

*Hardorp, J., Tüg, H., Schmidt-Kaler, T.* **107**, 311

#### HD 38268

R 136: WN or O Spectral Characteristics?

*Vreux, J.M., Dennefeld, M., Andrillat, Y.* **113**, L10

#### HD 77581

UBV-polarimetry of the X-ray Binaries HD 77581 (4U 0900-40), HD 153919 (4U 1700-37) and of HD 152667

*Östreicher, R., Schulte-Ladbeck, R.* **114**, 328

#### HD 80077

Mass Loss, Linear Polarization Variability, and Duplicity of the Luminous B2 Supergiant HD 80077

*Knoechel, G., Moffat, A.F.J.* **110**, 263

#### HD 86161

The Variable, Single-line WN8 Star HD 86161: Another Wolf-Rayet Star with a Low-mass Companion

*Moffat, A.F.J., Niemela, V.S.* **108**, 326

#### HD 87643

Analysis of the IUE and Optical Spectra of the Peculiar Be Star HD 87643

*de Freitas Pacheco, J.A., Gilra, D.P., Pottasch, S.R.* **108**, 111

#### HDE 269006

Further VBLUW Photometry of the S Doradus Type Variables S Dor and HDE 269006 in the LMC and a Discussion on Their Temperatures

*van Genderen, A.M.* **112**, 61

#### Her X-1

Observation of Hard X-rays Line Emission from Her X-1

*Polcaro, V.F., Bazzano, A., La Padula, C., Ubertini, P., Vietto, G., Manchanda, R.K., Damle, S.V.* **108**, 249

#### HR 2724

HR 2724 - A New Bright Variable in the  $\delta$  Scuti Instability Strip

*Baade, D., Stahl, O.* **114**, 131

#### HR 4975

HR 4975: A Possible Early-Type Contact System with Unequal Components

*Waelkens, C., Bartholdi, P.* **108**, 51

**HR 5999**

On the Properties of the Circumstellar Matter Around the Bright Young Variable Shell Star HR 5999

*Andersen, J., Gahm, G.F., Krelowski, J.* **113**, 176

**HR 7308**

The Peculiar Classical Cepheid HR 7308

*Burki, G., Mayor, M., Benz, W.* **109**, 258

**IID 25354**

Spectral Variations of Two Cool Ap Stars: HD 25354 and HD 152107

*Floquet, M.* **112**, 299

**IRC + 10216**

High Sensitivity Molecular Line Observations of IRC + 10216

*Olofsson, H., Johansson, L.E.B., Hjalmarsen, Å., Nguyen-Quang-Rieu* **107**, 128

**IRC+10216 (CW Leo)**

Molecular Abundances in IRC+10216

*Lafont, S., Lucas, R., Omont, A.* **106**, 201

**KQ Puppis**

The Ultraviolet Spectrum of KQ Puppis (Boss 1985)

*Altamore, A., Giangrande, A., Viotti, R.* **112**, 179; **49**, 511

**KS Per**

The Hot Component of KS Persei (HD 30353)

*Drilling, J.S., Schönberner, D.* **113**, L22

**L 745-46 A**

Discovery of Ca II Absorption at 1840 Å in the IUE Spectra of Two Helium-rich White Dwarfs

*Koester, D., Vauclair, G., Weidemann, V., Zeidler-K.T., E.M.* **113**, L13

**L 791-40 A**

Discovery of Ca II Absorption at 1840 Å in the IUE Spectra of Two Helium-rich White Dwarfs

*Koester, D., Vauclair, G., Weidemann, V., Zeidler-K.T., E.M.* **113**, L13

**LMC X-4**

A Study of Ultraviolet Spectroscopic and Light Variations in the X-ray Binaries LMC X-4 and SMC X-1

*van der Klis, M., Hammerslag-Hensberge, G., Bonnet-Bidaud, J.M., Ilovaisky, S.A., Mouchet, M., Glencross, W.M., Willis, A.J., van Paradijs, J., Zuiderwijk, E.J., Chevalier, C.* **106**, 339

**L1363-3**

IUE Observation of UV Absorption in the Spectrum of the C<sub>2</sub> White Dwarf L1363-3

*Vauclair, G., Weidemann, V., Koester, D.* **109**, 7

**Mira Cet**

The Diameter of Mira

*Bonneau, D., Foy, R., Blazit, A., Labeyrie, A.* **106**, 235

**NML Cyg**

An H II Region Near NML Cygnus

*Habing, H.J., Goss, W.M., Winnberg, A.* **108**, 412

**Nova Cr A**

Spectrophotometry of Nova Coronae Austrinae 1981

*Brosch, N.* **107**, 300

**P Cyg**

Has P Cygni Generated a Shock Front Which Emits Nonthermal Radiation?

*Wendker, H.J.* **116**, L1

**PS 74**

PS 74: The Discovery of a New SU UMa Type Dwarf Nova with High Orbital Inclination

*Barwig, H., Hunger, K., Kudritzki, R.P., Vogt, N.* **114**, L11

**QX Car**

Four-colour Photometry of Eclipsing Binaries, XIVB: Lightcurves of QX Carinae

*Andersen, J., Clausen, J.V., Nordström, B., Reipurth, B.* **112**, 180; **49**, 571

**R Mus**

UV, Optical and IR Observations of the Cepheid R Muscae

*Eichendorf, W., Heck, A., Caccin, B., Russo, G., Sollazzo, C.* **109**, 274

**RCrB**

Lithium and Barium in RCrB and XX Cam

*Hunger, K., Schönberner, D., Steenbock, W.* **107**, 93

**RR Pic**

A Photometric and Polarimetric Investigation of the Old Nova RR Pictoris

*Haefner, R., Metz, K.* **109**, 171

**RS CVn**

Evidence of Variable Migration Rate and a Past Direction Reversal of the RS CVn Wave-like Distortion

*Blanco, C., Catalano, S., Marilli, E., Rodonò, M.* **106**, 311

**Ru Eri**

Revised Photometric Data for Six Eclipsing Binaries

*Giuricin, G., Mardirossian, F., Mezzetti, M.* **111**, 210; **49**, 89

**RV Cro**

Revised Photometric Data for Six Eclipsing Binaries

*Giuricin, G., Mardirossian, F., Mezzetti, M.* **111**, 210; **49**, 89

**RW Aur**

YY Orionis Line Profiles in the Spectrum of RW Aurigae

*Appenzeller, I., Wolf, B.* **105**, 313

**RZ Oph**

VLW Photometry of RZ Oph (BD +7° 3832): Eclipse of the Accretion Disk

*van Paradijs, J., van der Woerd, H., van der Bij, M., Lee Van Suu, A.* **111**, 372



**S Ant**

Determination of Parameters of W UMa Systems. II: TW Cet, S Ant, U Peg, Er Ori

Russo, G., Sollazzo, C., Maceroni, C., Milano, L. **106**, 378; **47**, 211

**SCrA**

SCrA and CoD - 35° 10525, Two Bright Young Stars

Bertout, C., Carrasco, L., Mundt, R., Wolf, B. **107**, 412; **47**, 419

**SDor**

High Dispersion Spectroscopy of the LMC Star S Doradus During Maximum Light

Stahl, O., Wolf, B. **110**, 272

Further VBLUW Photometry of the S Doradus Type Variables S Dor and HDE 269006 in the LMC and a Discussion on Their Temperatures

van Genderen, A.M. **112**, 61

**Sirus**

The Binary System Sirius in the Context of Stellar Evolution

D'Antona, F. **114**, 289

**SMC Sk 143**

Sk 143: An SMC Star with a Galactic-type Ultraviolet Interstellar Extinction

Lequeux, J., Maurice, E., Prévot-Burnichon, M.-L., Prévot, L., Rocca-Volmerange, B. **113**, L15

**SMC X-1**

A Study of Ultraviolet Spectroscopic and Light Variations in the X-ray Binaries LMC X-4 and SMC X-1

van der Klis, M., Hammerschlag-Hensberge, G., Bonnet-Bidaud, J.M., Ilovaisky, S.A., Mouchet, M., Glencross, W.M., Willis, A.J., van Paradijs, J., Zuiderwijk, E.J., Chevalier, C. **106**, 339

**SS 433**

The 6-day Photometric and Spectroscopic Periods in SS 433

Matese, J.J., Whitmire, D.P. **106**, L9

**SY Mus**

A Brightening of the Symbiotic Variable SY Muscae

Michalitsianos, A.G., Kafatos, M., Feibelman, W.A., Wallerstein, G. **109**, 136

**TTau**

On the Discrepancy Between the Optical and Radio Position of T Tauri

de Vegt, C. **109**, L15

**TT Ari**

New Evidence of Strong UV Radiation in TT Ari

Wargau, W., Drechsel, H., Rahe, J., Vogt, N. **110**, 281

**TW Cet**

Determination of Parameters of W UMa Systems. II: TW Cet, S Ant, U Peg, Er Ori

Russo, G., Sollazzo, C., Maceroni, C., Milano, L. **106**, 378; **47**, 211

**TX Her**

Period Changes in Detached Close Binary Systems Due to Anisotropic Ejection of Mass

Van Hamme, W. **107**, 397

The Period Behaviour of the Detached Close Binary System TX Herculis

Van Hamme, W. **107**, 409

**Ty Pup**

Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup

Maceroni, C., Milano, L., Russo, G. **111**, 212; **49**, 123

**U Peg**

Determination of Parameters of W UMa Systems. II: TW Cet, S Ant, U Peg, Er Ori

Russo, G., Sollazzo, C., Maceroni, C., Milano, L. **106**, 378; **47**, 211

**V 1016 Cyg**

Interpretation of Line Profiles of the Symbiotic Star V 1016 Cyg

Kindl, C., Marxer, N., Nussbaumer, H. **116**, 265

**V 338 Cep**

Photoelectric Photometry of the Eclipsing Binary V 338 Cephei

Giesekeing, F. **106**, 179; **46**, 365

**V 523 Cas**

Revised Photometric Data for Six Eclipsing Binaries

Giuricin, G., Mardirossian, F., Mezzetti, M. **111**, 210; **49**, 89

**V 889 Aql**

A Photometric Study of the Eclipsing Binary V 889 Aql: An Example of Relativistic Apsidal Motion

Giménez, A., Scaltriti, F. **115**, 321

**vA771**

Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166

Griffin, R.F., Mayor, M., Gunn, J.E. **106**, 221

**vB166**

Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166

Griffin, R.F., Mayor, M., Gunn, J.E. **106**, 221

**Vela X-1**

On the Spin Down Episodes of Vela X-1

Molteni, D., Rapisarda, M., Re, S., Robba, N.R. **111**, 365

**V 645 Cyg**

An Unusual OH Maser Associated With V 645 Cygni

Morris, M., Kazès, I. **111**, 239

**V470 Cyg**

The Ellipsoidal Binary V470 Cygni

Russo, G., Milano, L., Maceroni, C. **109**, 368

**V502 Oph**

Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup  
*Maceroni, C., Milano, L., Russo, G. 111, 212; 49, 123*

**V644 Her**

Orbital Motion of the Pulsating Star V644 Her (Text in French)  
*Bardin, C., Imbert, M. 106, 380; 47, 319*

**XX Cam**

Lithium and Barium in RCrB and XX Cam  
*Hunger, K., Schönberner, D., Steenbock, W. 107, 93*

**YY Eri**

Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup  
*Maceroni, C., Milano, L., Russo, G. 111, 212; 49, 123*

 **$\alpha$  Cyg**

Mass Loss from  $\alpha$  Cyg (A21a) Derived from the Profiles of Low Excitation Fe II Lines  
*Hensberge, H., Lamers, H.J.G.L.M., de Loore, C., Bruhweiler, F.C. 106, 137*

 **$\alpha$  Lupi**

Frequency Analyses of Light and Radial Velocity Observations of  $\alpha$  Lup  
*Lampens, P., Goossens, M. 115, 413*

 **$\alpha$  Ori**

The Outer Atmosphere Structure of Three Late Type Stars  
*de Castro, E., Fernández-Figueroa, M.J., Rego, M. 113, 94*  
 The Angular Diameter of Betelgeuse  
*Balega, Y., Blazit, A., Bonneau, D., Koechlin, L., Foy, R., Labeyrie, A. 115, 253*

 **$\alpha$  Tra**

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines  
*Reimers, D. 107, 292*

 **$\alpha$  CMi**

A Model Atmosphere Analysis of Procyon ( $\alpha$  CMi, F5 IV-V)  
*Kato, K., Sadakane, K. 113, 135*

 **$\beta$  Com**

The Outer Atmosphere Structure of Three Late Type Stars  
*de Castro, E., Fernández-Figueroa, M.J., Rego, M. 113, 94*

 **$\gamma$  Peg**

Profile Variations of the Si III (4452 and 4568) Lines and Mg II (4481) Doublet in  $\gamma$  Peg  
*Le Contel, J.-M., Morel, P.-J. 107, 406*

 **$\epsilon$  Aur**

The Mid-ultraviolet Spectrum of  $\epsilon$  Aurigae  
*Castelli, F., Hoekstra, R., Kondo, Y. 115, 217; 50, 233*

 **$\zeta$  Aur**

A Study of Ultraviolet Spectra of  $\zeta$  Aur/VV Cep Systems. I. Resonance Line Formation  
*Hempe, K. 115, 133*

 **$\zeta^1$  Sco**

Variability and Mass Loss in the Extreme Supergiant  $\zeta^1$  Sco  
*Burki, G., Heck, A., Bianchi, L., Cassatella, A. 107, 205*

 **$\kappa$  Cnc**

A Search for Medium Z Elements in the Ultraviolet Spectrum of  $\kappa$  Cancri  
*Davidson, J.P., Bord, D.J. 111, 362*

 **$\lambda$  And**

Model Chromospheres of RS CVn Stars: Balmer Line Profiles in  $\lambda$  Andromedae  
*Mullan, D.J., Cram, L.E. 108, 251*

 **$\lambda$  CrB**

Absorption Line Symmetries for Two HgMn Stars  
*Rice, J.B., Wehlau, W.H. 106, 7*

 **$\nu$  Her**

On the Detection of Abundance Stratifications in Peculiar Stars Through the Curve of Growth Method  
*Alecian, G. 107, 61*

 **$\theta$  Her**

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines  
*Reimers, D. 107, 292*

 **$\theta^d$  Cru**

X-ray Observations of Single-line Spectroscopic Binaries  
*Singh, K.P., Naranan, S. 113, 167*

 **$\pi^H$  Ori**

X-ray Observations of Single-line Spectroscopic Binaries  
*Singh, K.P., Naranan, S. 113, 167*

 **$\sigma$  OriE;**

Shell and Photosphere of  $\sigma$  OriE: New Observations and Improved Model  
*Groote, D., Hunger, K. 116, 64*

 **$\sigma$  Sco**

The Pulsation of the Outer Layers of the Beta Cephei Star  $\sigma$  Sco  
*Burger, M., de Jager, C., van den Oord, G.H.J. 109, 289*

 **$\tau$  Aur**

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines  
*Reimers, D. 107, 292*

 **$\mu$  Cep**

A New Analysis of Light Variations in  $\mu$  Cephei  
*Mantegazza, L. 111, 295*

## Absorption Line Symmetries for Two HgMn Stars

Rice, J.B., Wehlau, W.H. **106**, 7

**IE0643-1648**

## First Ultraviolet Observations of Two New Cataclysmic Variables

IE0643-1648 and 4 U1849-31

Bonnet-Bidaud, J.M., Mouchet, M., Motch, C. **112**, 355

**112 Her**

## X-ray Observations of Single-line Spectroscopic Binaries

Singh, K.P., Naranan, S. **113**, 167

**2S0921-630**

## Color Variability and Optical Light Curve of 2S0921-630

Chevalier, C., Ilovaisky, S.A. **112**, 68

**2A 0311-227**

## Visual and Near Infrared Photometry of 2A 0311-227

Motch, C., van Paradijs, J., Pedersen, H., Ilovaisky, S.A.,  
Chevalier, C. **110**, 316

**20°669**

## Spectroscopic Orbits for Three Double-lined Binaries in the Hyades Field, 22°669, vA 771, and vB 166

Griffin, R.F., Mayor, M., Gunn, J.E. **106**, 221

**209 BAC**

## The Fastest Runaway Wolf-Rayet Star of Population I in the Galaxy, 209 BAC: Evidence for a Low Mass Companion

Moffat, A.F.J., Lamontagne, R., Seggewiss, W. **114**, 135

**21 Ari**

## Is 21 Ari = COU 79 a Multiple System?

Couteau, P., Morel, P.-J. **105**, 323

**28 CMa**

## An Usually Short Stable Period of Absorption Line Asymmetries and V/R Variations in the Spectrum of the Be Star 28 CMa

Baade, D. **105**, 65

## Does 28 CMa Have a Photometric Period Differing from Its Spectroscopic Period?

Baade, D. **110**, L15

**32 Cyg**On Excitation Through Radiative Pumping of the Fe II UV-Mult. 191  $\lambda\lambda$ 1785-88 Å Observed with IUE during the Eclipse of 32 Cyg

Hempe, K., Reimers, D. **107**, 36

A Study of Ultraviolet Spectra of  $\zeta$  Aur/VV Cep Systems. I. Resonance Line Formation

Hempe, K. **115**, 133

**4U 2129+47**

## Photoelectric Photometry of 4U 2129+47

Calafat, R., Canal, R., Núñez, J., Torra, J. **110**, 23

**4U1849-31**

## First Ultraviolet Observations of Two New Cataclysmic Variables IE0643-1648 and 4 U1849-31

Bonnet-Bidaud, J.M., Mouchet, M., Motch, C. **112**, 355

## Properties and Nature of Be and Shell Stars. 7 B.88 Her - An Important Clue to Understanding the Be Phenomenon?

Doazan, V., Harmanec, P., Koubsky, P., Krpata, J., Zdarsky, F. **115**, 138

**Stellar Atmospheres**, see also under the different Types of Stars, and Abundances, stellar; Stellar Coronae, Stellar Chromospheres

## Effective Temperatures, and Radii of Luminous O and B Stars: A Test for the Accuracy of the Model Atmospheres

Remie, H., Lamers, H.J.G.L.M. **105**, 85

## NLTE Model Atmospheres for Early-type Stars of Various Chemical Compositions and Resulting Emission-line Spectra for Surrounding H II Regions

Borsenberger, J., Stasińska, G. **106**, 158

## Spectra of the Red (2,0) CN Band in 31 G and K Giant Stars

Kjaergaard, P., Walker, G.A.H., Yang, S. **106**, 180; **46**, 375

## The Diameter of Mira

Bonneau, D., Foy, R., Blazit, A., Labeyrie, A. **106**, 235

## An Alternative Derivation of the Line Transfer Equation of an Arbitrarily Polarized Radiation in the Presence of a Magnetic Field, in non-LTE

Mathys, G. **108**, 213

## Incompressible Convection in a Radiating Atmosphere. I. General Characteristics

Legait, A. **108**, 287

## Effect of Spots on a Star's Radius and Luminosity

Spruit, H.C. **108**, 348

## The Flow of Heat near a Starspot

Spruit, H.C. **108**, 356

## Angle-averaged Redistribution Function in the Laboratory Frame

Seitz, M., Baschek, B., Wehrse, R. **109**, 10

## Radiative Transfer: Comparison of Finite Difference Equations

Kalkofen, W., Wehrse, R. **110**, 18

## Expected Broadband Linear Polarization from Cool Stars with Magnetic Structures

Landi Degl'Innocenti, E. **110**, 25

The Spectrum of FG Sge in 1979-1980. I.  $\lambda\lambda$  3700-5000 Å

Acker, A., Jaschek, M., Gleizes, F. **110**, 181; **48**, 363

## Polarimetric Observations of HD 199178 - an FK Comae Type Star

Pirola, V., Vilhu, O. **110**, 351

## Molecules in Red-giant Stars. I. Column Densities in Models for K and M Stars

Johnson, H.R., Sauval, A.J. **111**, 210; **49**, 77

A New Analysis of Light Variations in  $\mu$  Cephei

Mantegazza, L. **111**, 295

## Super-critical X-ray Luminosities: The Structure and Stability of a Radiation-supported Plasma Layer

Wang, Y.-M. **112**, 24

## The Ultraviolet Spectrum of KQ Puppis (Boss 1985)

Altamore, A., Giangrande, A., Viotti, R. **112**, 179; **49**, 511

## Broadband Linear Polarization from Magnetized Stellar Atmospheres. Numerical Tables for the Magnetic Intensification Mechanism

Landi Degl'Innocenti, E., Calamai, G. **112**, 395; **49**, 677

A Model Atmosphere Analysis of Procyon ( $\alpha$ CMi, F5 IV-V)

Kato, K., Sadakane, K. **113**, 135

Observed and Computed UV Spectral Distribution of A and F Stars. Determination of  $T_e$  and  $\log g$

*Malagnini, M.L., Faraggiana, R., Morossi, C., Crivellari, L.* **114**, 170

The Angular Diameter of Betelgeuse

*Balega, Y., Blazit, A., Bonneau, D., Koechlin, L., Foy, R., Labeyrie, A.* **115**, 253

### Stellar Chromospheres

Theoretical Models of Homogeneous Chromospheres for Main Sequence Stars

*Musielak, Z.* **105**, 23

Heating of Stellar Chromospheres when Magnetic Fields are Present

*Ulmschneider, P., Stein, R.F.* **106**, 9

The Variable Shell Star HR 5999. VI. Strong Chromospheric and Transition Region Emission Lines in the Ultraviolet Spectrum of a Herbig Ae Star

*Tjin A Djie, H.R.E., Thé, P.S., Hack, M., Selvelli, P.L.* **106**, 98

Magnetic Structure in Cool Stars. IV. Rotation and Ca II H and K Emission of Main-sequence Stars

*Middelkoop, F.* **107**, 31

Mg II h and k Line Observations of Delta Scuti Variables

*Fracassini, M., Pasinetti, L.E.* **107**, 326

Model Chromospheres of RS CVn Stars: Balmer Line Profiles in  $\lambda$  Andromedae

*Mullan, D.J., Cram, L.E.* **108**, 251

Magnetic Structure in Cool Stars. V. Chromospheric and Transition-region Emission from Giants

*Oranje, B.J., Zwaan, C., Middelkoop, F.* **110**, 30

On the Structure of the Outer Layers of Cool Carbon Stars

*Querci, F., Querci, M., Wing, R.F., Cassatella, A., Heck, A.* **111**, 120

Magnetic Structure in Cool Stars. VI. Ca II H and K Fluxes from Evolved Stars

*Middelkoop, F.* **113**, 1

The Outer Atmosphere Structure of Three Late Type Stars

*de Castro, E., Fernández-Figueroa, M.J., Rego, M.* **113**, 94

Chromospheric Mg II Emission in A5 to K5 Main Sequence Stars from High Resolution IUE Spectra

*Blanco, C., Bruca, L., Catalano, S., Marilli, E.* **115**, 280

### Stellar Coronae

On the Absence of Coronal Line Emission from Orion Population Stars

*Gahm, G.F., Krautter, J.* **106**, 25

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines

*Reimers, D.* **107**, 292

On the Theory of Shock-heated Atmospheres. III. Discussion of the Formalism and Application to Stellar Coronae

*Souffrin, P.* **109**, 205

Magnetic Structure in Cool Stars. V. Chromospheric and Transition-region Emission from Giants

*Oranje, B.J., Zwaan, C., Middelkoop, F.* **110**, 30

The Outer Atmosphere Structure of Three Late Type Stars

*de Castro, E., Fernández-Figueroa, M.J., Rego, M.* **113**, 94

Models for Stellar Coronae: The Effects of Coronal Heating with Long Dissipation Scale Lengths

*Hearn, A.G.* **116**, 296

**Stellar Diameters**, see also Eclipsing Binaries, Peculiar A Stars

Effective Temperatures, and Radii of Luminous O and B Stars: A Test for the Accuracy of the Model Atmospheres

*Remie, H., Lamers, H.J.G.L.M.* **105**, 85

On the Radius Determination of the Variable F-type Supergiant BL Tel(F)

*van Genderen, A.M.* **105**, 250

The Diameter of Mira

*Bonneau, D., Foy, R., Blazit, A., Labeyrie, A.* **106**, 235

Some Remarks on the Spectra of X-ray Bursts

*van Paradijs, J.* **107**, 51

A List of Stars with Large Expected Angular Diameters

*Ochsenbein, F., Halbwachs, J.L.* **107**, 414; **47**, 523

The Angular Diameter of Betelgeuse

*Balega, Y., Blazit, A., Bonneau, D., Koechlin, L., Foy, R., Labeyrie, A.* **115**, 253

Estimated Absolute Dimensions and the Inferred Lifetime and Angular Momentum of W Ursae Majoris Contact Binaries

*Van Hamme, W.* **116**, 27

**Stellar Dynamics and Kinematics**, see also Gamma Ray Radiation

Kinematics and Dynamics of the Barred Spiral Galaxy NGC 1313

*Marcelin, M., Athanassoula, E.* **105**, 76

On the Evidence of a Massive Galactic Corona

*Rohlf, K.* **105**, 296

The Equilibrium and Bifurcation of Rotating Stellar Systems

*Wiegandt, R.* **105**, 326

Studies of Nearly Face-on Spiral Galaxies. I. The Velocity Dispersion of the H I Gas in NGC 3938

*van der Kruit, P.C., Shostak, G.S.* **105**, 351

The Stability of Inhomogeneous Axisymmetric Stellar Systems

*Wiegandt, R.* **106**, 240

Excitation of Warps in Galaxies: Fluid Model of Disk-halo Interaction

*Bertin, G., Casertano, S.* **106**, 274

Revised Photometric Elements of the Eclipsing Binary EE Aquarii

*Russo, G., Sollazzo, C.* **107**, 197

Periodic Orbits in Triaxial Galactic Models

*Magenat, P.* **108**, 89

Plane Galactic Orbits in Stationary and Time-dependent Rotating Bars

*Spreckels, H., Thielheim, K.O.* **108**, 206

Density Wave Theory for Spiral Galaxies: Effects of Resonant Stars at Corotation

*Bertin, G., Haass, J.* **108**, 265

High Order Moments of the Local Stellar Velocity Distribution

*Núñez, J., Torra, J.* **110**, 95

The Phase-space Distribution Function of Galaxies in Clusters and the Secondary Peak

*Trevese, D., Vignato, A.* **110**, 238

Dissipative Evolution of Collisionless Stellar Systems. II. Influence of Binaries on the Evolution of Globular Clusters and Galactic Nuclei

*Dokuchaev, V.I., Ozernoy, L.M.* **111**, 16

On the Disk Thickness of Spiral Galaxies

*Rohlf, K., Wiemer, H.-J.* **112**, 116

Radial Velocities of 617 Stars Belonging to Four Stellar Fields of  $4^\circ \times 4^\circ$  (Text in French)

*Fehrenbach, C., Burnage, R.* **112**, 178; **49**, 483

An Odd Behavior of Nearby Stars Velocity Components in the Direction  $l = 330^\circ$   $b = 0^\circ$

*Menge de Freitas, S.* **112**, 395; **49**, 687



The Distribution of Stars Around a Black Hole: Numerical Solution of the Kinetic Equation with Collisions

Bisnovatyi-Kogan, G.S., Churayev, R.S., Kolosov, B.I. **113**, 179  
Vlasov Equation?

Hénon, M. **114**, 211

Periodic Orbits in Nearly Axisymmetric Stellar Systems

Caranicas, N., Barbanis, B. **114**, 360

Lifetime of Spurs in Galaxies

Feitzinger, J.V., Schwerdtfeger, H. **116**, 117

**Stellar Envelopes**, see Be Stars, Circumstellar Matter, Shell Stars

**Stellar Evolution**, see also Star Formation, Stellar Structure

The Helium to Heavy Element Enrichment Ratio,  $\Delta Y/\Delta Z$

Chiosi, C., Matteucci, F. **105**, 140

Evolutionary Scenarios Leading Massive Stars to WR Stars: Their Mutual Importance; the Role of Mixing

Maeder, A. **105**, 149

On the Evolutionary Scenario of Massive Close Binaries with Primary Masses Between 20  $M_{\odot}$  and 160  $M_{\odot}$

Vanbeveren, D. **105**, 260

On the Evolutionary State of the W Ursae Majoris Contact Binaries

Van Hamme, W. **105**, 389

Vibrational Instability of a 3000  $M_{\odot}$  Star and the R 136a Problem

Ledoux, P., Noels, A., Boury, A. **108**, 49

The Evolution of a 1  $M_{\odot}$  Helium Star

Law, W.-Y. **108**, 118

Comparisons of the HR Diagrams of the Youngest Clusters in the Galaxy, the LMC and SMC. Evidence for a Large MS Widening

Meylan, G., Maeder, A. **108**, 148

Detached  $\rightarrow$  Contact Scenario for the Origin of WUMa Stars

Vilhu, O. **109**, 17

Stellar Content of Young Open Clusters. II. Be Stars

Mermilliod, J.-C. **109**, 48

On the Stability and Evolution of Contact Binaries. I

Rahunen, T. **109**, 66

uvby $\beta$  Photometry of Visual Double Stars: A Comparison With Stellar Models and Isochrones

Olsen, E.H. **110**, 215

A Search for Ap Stars in the Scorpio-Centaurus Association: Additional Evidence for a Slow Metal Enrichment

Borra, E.F., Joncas, G., Wizinowich, P. **111**, 117

The Influence of CN Abundances on the Evolution of Main Sequence of Low-mass Stars

Bazzano, A., Caputo, F., Sestili, M., Castellani, V. **111**, 312

The Hot Component of KS Persei (HD 30353)

Drilling, J.S., Schönberner, D. **113**, L22

The Theoretical Expected Galactic Distribution of WR Runaway Stars

Vanbeveren, D. **113**, 205

Evolution of Low Mass Stars Through Mass Loss: Transition from the Main Sequence to the Degenerate Phase

D'Antona, F., Mazzitelli, I. **113**, 303

The Binary System Sirius in the Context of Stellar Evolution

D'Antona, F. **114**, 289

The Ultimate Fate of Wolf-Rayet Stars as Supernovae

Maeder, A., Lequeux, J. **114**, 409

Evolution of Low Mass Zero Metal Giants up to the Helium Flash

D'Antona, F. **115**, L1

Carbon, Nitrogen and Oxygen Abundances in G8-K3 Giant Stars

Kjærgaard, P., Gustafsson, B., Walker, G.A.H., Hultqvist, L. **115**, 145

The Combined Effect of Mass Loss and Overshooting. I. The Evolution of 35  $M_{\odot}$  to 100  $M_{\odot}$  Stars During Core Hydrogen Burning

Doom, C. **116**, 303

The Combined Effect of Mass Loss and Overshooting. II. The Evolution of 10  $M_{\odot}$  to 30  $M_{\odot}$  Stars During Core Hydrogen Burning

Doom, C. **116**, 308

Spectroscopic Identification of White Dwarfs in Galactic Clusters. II. NGC 2516

Reimers, D., Koester, D. **116**, 341

**Stellar Flares**, see Flare Stars

**Stellar Interior**, see Stellar Structure

**Stellar Masses**, see also Binary Stars, Multiple Stars

The Ellipsoidal Binary V470 Cygni

Russo, G., Milano, L., Maceroni, C. **109**, 368

Revised Photometric Data for Six Eclipsing Binaries

Giuricin, G., Mardirossian, F., Mezzetti, M. **111**, 210; **49**, 89

Revised Orbital Elements of Visual Binary Stars ADS 3182 and ADS 3483 (Text in French)

Scardia, M. **112**, 179; **49**, 503

Atmospheric Parameters and Carbon Abundance of White Dwarfs of Spectral Types C<sub>2</sub> and DC

Koester, D., Weidemann, V., Zeidler-K.T., E.-M. **116**, 147

**Stellar Occultations**, see Occultation

**Stellar Radii**, see Stellar Diameters

**Stellar Rotation**

Duplicity in the Solar Neighborhood. II. Spectroscopic Orbits for Four Bright Stars: HD 21018, HD 30021, HD 158837, and HD 190658

Lucke, P.B., Mayor, M. **105**, 318

A Model for Constructing Artificial Integrated Spectral Lines and Their Fourier Transform Properties Relevant to the Search for Differential Rotation of Stars

Garcia-Alegre, M.C., Vázquez, M., Wöhl, H. **106**, 261

Evidence of Variable Migration Rate and a Past Direction Reversal of the RS CVn Wave-like Distortion

Blanco, C., Catalano, S., Marilli, E., Rodonò, M. **106**, 311

Magnetic Structure in Cool Stars. IV. Rotation and Ca II H and K Emission of Main-sequence Stars

Middelkoop, F. **107**, 31

Active Picture of Rotation

Ando, H. **108**, 7

Forced Oscillations in Binary Systems. Toroidal Modes

Rocca, A. **111**, 252

Magnetic Structure in Cool Stars. VI. Ca II H and K Fluxes from Evolved Stars

Middelkoop, F. **113**, 1

Stability of Differential Rotation in Stars

Knobloch, E., Spruit, H.C. **113**, 261

A Note on Garcia-Alegre et al.'s Article, "A Model for Constructing Artificial Integrated Spectral Lines and Their Fourier Transform Properties Relevant to the Search for Differential Rotation of Stars"

Bruning, D.H. **115**, 203

Shell and Photosphere of  $\sigma$  OriE: New Observations and Improved Model

Groote, D., *Hunger, K.* **116, 64**

**Stellar Statistics**, see also Stellar Dynamics and Kinematics

Three-colour Photometry of a Field in the Galactic Anticentre Section Near NGC 2360

Morales Durán, C. **108, 416; 48, 139**

**Stellar Structure**, see also Stellar Evolution

Evolutionary Scenarios Leading Massive Stars to WR Stars: Their Mutual Importance; the Role of Mixing

Maeder, A. **105, 149**

Vibrational Stability and Critical Mass of He Stars

Noels, A., Masereel, C. **105, 293**

On the Modal Structure of the Solar Oscillations

Stein, R.F. **105, 417**

The Solar Neutrino Problem

Taylor, J.B., Connor, J.W. **107, 11**

Overshooting from Convective Cores and the Occurrence of Loops in the HR Diagram

Matraka, B., Wassermann, C., Weigert, A. **107, 283**

Semiconvection in Low-mass Main Sequence Stars

Crowe, R.A., Mitalas, R. **108, 55**

The Evolution of a  $1 M_{\odot}$  Helium Star

Law, W.-Y. **108, 118**

Models of Stellar Evolution and Their Use in Calibrating Distances and Element Abundances of Stars

Gehren, T. **109, 187**

On Local Theories of Time-dependent Convection in the Stellar Pulsation Problem. III. The Effect of Turbulent Viscosity (Continued)

Gonczy, G. **110, 1**

The Solar Structure and the Low / Five-minute Oscillation. I

Gabriel, M., Scuflaire, R., Noels, A. **110, 50**

Non-linear Stellar Oscillations. Two-Mode Interactions

Perdang, J., Blacher, S. **112, 35**

Mean-field Calculations of the Equation of State of Supernova Matter II

Bonche, P., Vautherin, D. **112, 268**

The Overshoot Layer at the Base of the Solar Convective Zone and the Problem of Magnetic Flux Storage

van Ballegoijen, A.A. **113, 99**

The Solar Structure and the Low / Five-minute Oscillation. II

Scuflaire, R., Gabriel, M., Noels, A. **113, 219**

Stability of Differential Rotation in Stars

Knobloch, E., Spruit, H.C. **113, 261**

The Effect of Non-adiabatic Layers on the Vibrational Behaviour of Stars

Buchler, J.R., Regev, O. **114, 188**

Nuclear Forces and the Properties of Matter at High Temperature and Density

Rayet, M., Arnould, M., Tondeur, F., Paulus, G. **116, 183**

#### (solar oscillations)

New Features of the Oscillation Spectrum of the Sun

Kneer, F., Newkirk, G., Jr., von Uexküll, M. **113, 129**

**Stellar Systems**, see also Clusters, Galaxies

**Stellar Wind**, see also Close Binaries, Early Type Stars, Mass Loss, Solar Wind, X-ray Binaries

On the Theory of Thermally Sustained Stellar Winds

Souffrin, P. **106, 14**

On the Ionization and Velocity Structure of Expanding Circumstellar Envelopes

Drechsel, H., Rahe, J. **106, 70**

Wind Acceleration in Early-type Stars: The Momentum Problem and the Terminal Velocity

Panagia, N., Macchetto, F. **106, 266**

On Hot Star Winds. I. Radiation-driven Winds

Leroy, M., Lafon, J.-P. **106, 345**

On Hot Star Winds. II. Energy Transport - Corona-like Temperature Enhancements

Leroy, M., Lafon, J.-P. **106, 358**

Spectroscopy and Infrared Photometry of Cyg OB 2 Stars: Velocity Law and Mass-loss Rates

Leitherer, C., Hefele, H., Stahl, O., Wolf, B. **108, 102**

Nonspherical Stellar Envelopes and Winds: Effects of Structure on Radiative Fluxes and Apparent Mass Loss Rates

Schmid-Burgk, J. **108, 169**

Stellar Wind in the Nucleus of IC 2149

Perinotto, M., Benvenuti, P., Cerruti-Sola, M. **108, 314**

On the Origin of Planetary Nebulae

Nussbaumer, H. **110, 11**

An Exploding  $10 M_{\odot}$  Star: A Model for the Crab Supernova

Hillebrandt, W. **110, 13**

Dynamics of the Supergiant Shell LMC 2 in the Large Magellanic Cloud

Caulet, A., Deharveng, L., Georgelin, Y.M., Georgelin, Y.P. **110, 185**

X-ray and UV-emission from Supernova Shock Waves in Stellar Winds

Fransson, C. **111, 140**

Neutral Hydrogen Associated with Southern Supernova Remnants. II. Lupus Loop

Colomb, F.R., Dubner, G. **112, 141**

Shock Fronts in Wide Binary Systems

Huang, R.Q., Weigert, A. **112, 281**

Stability of Differential Rotation in Stars

Knobloch, E., Spruit, H.C. **113, 261**

The UV Spectrum of the Old Nova HR Del at Different Orbital Phases

Friedjung, M., Andriolat, Y., Puget, P. **114, 351**

Far Infrared Observations of a Star Forming Region in Serpens

Nordh, H.L., van Duinen, R.J., Sargent, A.I., Fridlund, C.V.M., Aalders, J.W.G., Beintema, D. **115, 308**

M1-67: A Wind-blown Bubble Carried Along by the High-velocity WR Star 209 BAC?

Solf, J., Carsenty, U. **116, 54**

CO  $J=3 \rightarrow 2$  and Submillimetre Continuum Observations of Two Molecular Outflow Sources

Phillips, J.P., White, G.J., Ade, P.A.R., Cunningham, C.T., Richardson, K.J., Robson, E.I., Watt, G.D. **116, 130**

Shock Fronts Produced by Stellar Winds in the Interstellar Gas

Huang, R.Q., Weigert, A. **116, 348**

**Stokes Parameter**, see Magnetic Field

**Stroemgren Photometry**

Spectroscopic and Photometric Observations of White Dwarfs

Koester, D., Weidemann, V. **108, 406**

# uvby Photometry in McCormick Proper Motion Fields

- Degewij, J.* **110**, 183; **48**, 481  
 High Angular Resolution uvby $\beta$  Observations of Stars Earlier than GO in the Intermediate and Low Latitude Areas SA 128 and SA 156  
*Knude, J.* **111**, 210; **49**, 69  
 Four-colour and H  $\beta$  Photometry for O-A0 type Stars in Three Regions Near the Galactic Equator  
*Westin, T.N.G.* **112**, 180; **49**, 561

## Subdwarfs

- LB 3459 - An O-type Subdwarf Eclipsing Binary System. Non-LTE Analysis of the Primary  
*Kudritzki, R.P., Simon, K.P., Lynas-Gray, A.E., Kilkenny, D., Hill, P.W.* **106**, 254  
 The Schweizer-Middleditch Star: Not a Stellar Remnant of SN1006  
*Savedoff, M.P., Van Horn, H.M.* **107**, L3  
 The O Type Subdwarf ROB 162 in the Globular Cluster NGC 6397  
*Caloi, V., Castellani, V., Panagia, N.* **107**, 145  
 Non-LTE Analysis of Subluminous O-Stars. II. The Hydrogen-deficient Subdwarf O-Star HD 127493  
*Simon, K.P.* **107**, 313  
 Spectral Analysis of the OB Subdwarf HD 149 382  
*Baschek, B., Kudritzki, R.P., Scholz, M., Simon, K.P.* **108**, 387  
 The OB Subdwarf Feige 66, a Chemical-composition Twin to HD 149382  
*Baschek, B., Höflich, P., Scholz, M.* **112**, 76

## Submillimetre Radiation

- Sun, see also Abundance, solar; and solar ...  
 The Sun Among the Stars. V. A Second Search for Solar Spectral Analogs. The Hyades' Distance  
*Hardorp, J.* **105**, 120  
 How to Measure the Sun like a Star  
*Tüg, H.* **105**, 395  
 A Direct UVB Color Measurement of the Sun  
*Tüg, H., Schmidt-Kaler, T.* **105**, 400  
 The Solar Neutrino Problem  
*Taylor, J.B., Connor, J.W.* **107**, L1  
 The Sun Among the Stars. VI. The Solar Analog HD 44594  
*Hardorp, J., Tüg, H., Schmidt-Kaler, T.* **107**, 311  
 Solar Site-testing Campaign of JOSO on the Canary Islands in 1979  
*Brandt, P.N., Wöhl, H.* **109**, 77  
 Observations of the Sun at the CERGA Astrolabe in 1980 (Text in French)  
*Laclare, F., Glentzlin, M., Leister, N.V., Chollet, F.* **110**, 181; **48**, 371  
 Seeing-independent Definitions of the Solar Limb Position  
*Brown, T.M.* **116**, 260

## Sunspots

- Table of Solar Diatomic Molecular Lines. IV. Spectral Range: 7600-8100  
*Boyer, R., Sotirovski, P., Harvey, J.W.* **106**, 181; **47**, 145  
 A Morphological Study of Some Umbral Fine Structures  
*Soltan, D.* **107**, 211  
 Effect of Spots on a Star's Radius and Luminosity  
*Spruit, H.C.* **108**, 348

## The Flow of Heat near a Starspot

- Spruit, H.C.* **108**, 356  
 Mass Motions in the Solar Chromosphere and Transition Zone  
*Mein, P., Simon, G., Vial, J.C., Shine, R.A.* **111**, 136  
 Differential Rotation and Meridional Motions of Sunspots from 1874 to 1902  
*Arévalo, M.J., Gomez, R., Vázquez, M., Balthasar, H., Wöhl, H.* **111**, 266  
 Angular Velocity of Sunspots Along the Butterfly Diagram  
*Godoli, G., Mazzucconi, F.* **116**, 188

## Supergalaxies, see Clusters of Galaxies

## Supergiants

- Effective Temperatures, and Radii of Luminous O and B Stars: A Test for the Accuracy of the Model Atmospheres  
*Remie, H., Lamers, H.J.G.L.M.* **105**, 85  
 On the Radius Determination of the Variable F-type Supergiant BL Tel(F)  
*van Genderen, A.M.* **105**, 250  
 Variability and Mass Loss in the Extreme Supergiant  $\zeta^1$  Sco  
*Burki, G., Heck, A., Bianchi, L., Cassatella, A.* **107**, 205  
 VBLUW Photometry of Magellanic Cloud Super- and Hypergiants, Made in 1977 up to 1979  
*van Genderen, A.M., van Leeuwen, F., Brand, J.* **107**, 416; **47**, 591  
 An H II Region Near NML Cygnus  
*Habing, H.J., Goss, W.M., Winnberg, A.* **108**, 412  
 An Exploding 10  $M_{\odot}$  Star: A Model for the Crab Supernova  
*Hillebrandt, W.* **110**, L3  
 Equivalent Width Measurements in Galactic Supergiant and in Small Magellanic Cloud Star Spectra  
*Dubois, P.* **110**, 182; **48**, 375  
 Mass Loss, Linear Polarization Variability, and Duplicity of the Luminous B2 Supergiant HD 80077  
*Knoechel, G., Moffat, A.F.J.* **110**, 263  
 AG Car: A Galactic S Dor Variable  
*Wolf, B., Stahl, O.* **112**, 111  
 The Nature of the 1E1145.1-6141 Optical Counterpart  
*Ilovaisky, S.A., Chevalier, C., Motch, C.* **114**, L7  
 The Two-colour Diagram of Luminous Stars in the Magellanic Clouds (Text in German)  
*Isserstedt, J.* **115**, 97  
 The Mid-ultraviolet Spectrum of  $\epsilon$  Aurigae  
*Castelli, F., Hoekstra, R., Kondo, Y.* **115**, 217; **50**, 233  
 The Combined Effect of Mass Loss and Overshooting. I. The Evolution of 35  $M_{\odot}$  to 100  $M_{\odot}$  Stars During Core Hydrogen Burning  
*Doom, C.* **116**, 303

## Supergranulation, see Solar Granulation

## Supermassive Stars

- Vibrational Instability of a 3000  $M_{\odot}$  Star and the R 136a Problem  
*Ledoux, P., Noels, A., Boury, A.* **108**, 49

## Supernovae and Supernova Remnants, see also Crab Nebula, Pulsars

- Further Observations of Radio Sources from the BG Survey. I. The Non-thermal Sources near  $l = 94^{\circ}$   
*Mantovani, F., Nanni, M., Salter, C.J., Tomasi, P.* **105**, 176

- The Radio Morphology of Supernova Remnants  
*Shaver, P.A.* **105**, 306
- G33.2-0.6, an Old Supernova Remnant with a Spectral Break  
*Reich, W.* **106**, 314
- The Schweizer-Middleditch Star: Not a Stellar Remnant of SN1006  
*Savedoff, M.P., Van Horn, H.M.* **107**, L3
- A Continuum Study of Galactic Radio Sources in the Constellation of Monoceros  
*Graham, D.A., Haslam, C.G.T., Salter, C.J., Wilson, W.E.* **109**, 145
- The Effects of Non-equilibrium Ionization on the X-ray Emission of Supernova Remnants  
*Gronenschild, E.H.B.M., Mewe, R.* **110**, 180; **48**, 305
- Dynamics of the Supergiant Shell LMC 2 in the Large Magellanic Cloud  
*Caulet, A., Deharveng, L., Georgelin, Y.M., Georgelin, Y.P.* **110**, 185
- [Ni II] Emission Under Nebular Conditions  
*Nussbaumer, H., Storey, P.J.* **110**, 295
- X-ray and UV-emission from Supernova Shock Waves in Stellar Winds  
*Fransson, C.* **111**, 140
- Absolute Photometry of Supernova Remnants and Emission Nebulae in the Galaxy and the Magellanic Clouds  
*Greve, A., van Genderen, A.M., Dennefeld, M., Danziger, I.J.* **111**, 171
- Reddening Relations of the *VBLUW* and *UBV* Systems for Objects with Emission Line Spectra  
*Greve, A., van Genderen, A.M.* **111**, 185
- Redshifts of Parent Galaxies of Supernovae  
*Barbon, R., Capaccioli, M., West, R.M., Barbier, R.* **111**, 210; **49**, 73
- The Structure of Cosmic Ray Shocks  
*Axford, W.I., Leer, E., McKenzie, J.F.* **111**, 317
- Anticenter High Velocity H I Stream (Weaver Jet) and Colliding H I Shells  
*Watanabe, T.* **111**, 333
- Supernova Remnants and Bell's Acceleration Mechanism  
*Cavallo, G.* **111**, 368
- Neutral Hydrogen Associated with Southern Supernova Remnants. II. Lupus Loop  
*Colomb, F.R., Dubner, G.* **112**, 141
- A Spectrophotometric Study of Kepler Supernova Remnant  
*Dennefeld, M.* **112**, 215
- Mean-field Calculations of the Equation of State of Supernova Matter II  
*Bonche, P., Vautherin, D.* **112**, 268
- A Distinct Shell Structure in H I-line Emission at Intermediate Galactic Latitudes  
*Velden, L., Hirth, W.* **113**, 340
- Gravitational Radiation from Collapsing Rotating Stellar Cores  
*Müller, E.* **114**, 53
- Spectrophotometry of Wolf-Rayet Star Candidates in M 33  
*Wampler, E.J.* **114**, 165
- Spectra of SN 1980 k in NGC 6946  
*Barbieri, C., Bonoli, C., Cristiani, S.* **114**, 216
- Kinematics of Ring-shaped Nebulae in the LMC. II. The Radial Velocity Field of N 185  
*Rosado, M., Georgelin, Y.M., Georgelin, Y.P., Laval, A., Monnet, G.* **115**, 61
- Soft X-ray Filter Spectroscopy of the Supernova Remnants Vela X and Puppis A  
*Burkert, W., Zimmermann, H.U., Aschenbach, B., Bräuninger, H., Williamson, F.* **115**, 167
- The Galactic Abundance Gradient from Supernova Remnant Observations  
*Binette, L., Dopita, M.A., D'Odorico, S., Benvenuti, P.* **115**, 315
- Radio Observations of Small Diameter Sources in the Field of the Supernova Remnant S147  
*Fürst, E., Reich, W., Beck, R., Hirth, W., Angerhofer, P.E.* **115**, 428
- Two Bright Supernovae in NGC 6946 and NGC 4536  
*Barbon, R., Ciatti, F., Rosino, L.* **116**, 35
- Spectra and Light Curves of Three Recent Supernovae  
*Barbon, R., Ciatti, F., Rosino, L., Ortolani, S., Rafanelli, P.* **116**, 43
- Surveys**
- A 408 MHz All-sky Continuum Survey. II. The Atlas of Contour Maps  
*Haslam, C.G.T., Salter, C.J., Stoffel, H., Wilson, W.E.* **106**, 181; **47**, 1
- Far Infrared Survey of Extended Molecular Clouds H II Regions Complexes Along the Galactic Plane  
*Gispert, R., Puget, J.L., Serra, G.* **106**, 293
- H<sub>2</sub>O Masers - Survey of the Galactic Plane. II  
*Braz, M.A., Scalise, E. Jr.* **107**, 272
- A Westerbork Survey of Clusters of Galaxies. XIV. Abell 779 and Abell 1314  
*Wilson, A.S., Vallée, J.P.* **107**, 416; **47**, 601
- Results of a Radio Survey for New Compact H II Regions  
*Wink, J.E., Altenhoff, W.J., Mezger, P.G.* **108**, 227
- Quasars in a Control Field Far from Bright Galaxies  
*Arp, H., Surdej, J.* **109**, 101
- Automatic Image Classification  
*Butchins, S.A.* **109**, 360
- A Radio Continuum Survey of the Northern Sky at 1420 MHz - Part I  
*Reich, W.* **110**, 180; **48**, 219
- The Physical Nature of the Blue Objects in the Field of 88 Leonis  
*Erculiani Abati, L.* **110**, 180; **48**, 333
- Discoveries on Southern, Red-sensitive Objective-prism Plates. IV. Extension to Higher Latitudes  
*MacConnell, D.J.* **110**, 181; **48**, 355
- Telescope Beam Characteristics and Temperature Scale of the Maryland-Green Bank 21-cm Line Survey  
*Westerhout, G., Mader, G.L., Harten, R.H.* **111**, 212; **49**, 137
- The Maryland-Green Bank Galactic 21-cm Line Survey  
*Westerhout, G., Wendlandt, H.-U.* **111**, 212; **49**, 143
- The ESO Quick Blue Survey and ESO (B) Atlas  
*West, R.M., Schuster, H.-E.* **112**, 180; **49**, 577
- The South West Extension of the Perseus Supercluster  
*Focardi, P., Marano, B., Vettolani, G.* **113**, 15
- Radio Measurements in the Fields of Gamma-ray Sources. I. CG 195+04  
*Sieber, W., Schlickeiser, R.* **113**, 314
- Infrared Observations of OH/IR Stars  
*Willems, F., de Jong, T.* **115**, 213
- A 1415 MHz Survey of Seyfert and Related Galaxies. III  
*Wilson, A.S., Meurs, E.J.A.* **115**, 217; **50**, 217



**Symbiotic Stars**, see also Binary Stars

The Symbiotic Star CI Cygni: S-process Episode or Accretion Event?

*Kenyon, S.J., Webbink, R.F., Gallagher, J.S., Truran, J.W.* **106**, 109

The Ultraviolet Spectrum of CH Cygni During the Outburst Started in 1977

*Hack, M., Selvelli, P.L.* **107**, 200

A Brightening of the Symbiotic Variable SY Muscae

*Michalitsianos, A.G., Kafatos, M., Feibelman, W.A., Wallerstein, G.* **109**, 136

Radial Velocities of CH Cygni During the Outburst Started in 1977

*Hack, M., Rusconi, L., Sedmak, G., Engin, S., Yilmaz, N.* **113**, 250

Interpretation of Line Profiles of the Symbiotic Star V 1016 Cyg

*Kindl, C., Marxer, N., Nussbaumer, H.* **116**, 265

**Synchrotron Radiation**, see also Magnetohydrodynamics

On the Interpretation of Optically Thin Synchrotron Spectra

*Pineault, S.* **114**, 177

Absolute Photometry of the Crab Nebula

*Greve, A., van Genderen, A.M.* **115**, 79

**T Tauri Stars**, see also Herbig-Haro Objects, Pre-Main-Sequence Stars, YY Orionis Stars

YY Orionis Line Profiles in the Spectrum of RW Aurigae

*Appenzeller, I., Wolf, B.* **105**, 313

On the Absence of Coronal Line Emission from Orion Population Stars

*Gahm, G.F., Krautter, J.* **106**, 25

Radio Emission from Young Stars

*Felli, M., Gahm, G.F., Harten, R.H., Liseau, R., Panagia, N.* **107**, 354

Radio Observations of Pre-main-sequence Stars: Results and Interpretation

*Bertout, C., Thum, C.* **107**, 368

A Linear Polarization Survey of T Tauri Stars

*Bastien, P.* **108**, 417; **48**, 153

On the Discrepancy Between the Optical and Radio Position of T Tauri

*de Vegt, C.* **109**, L15

**Telescopes**, see Instruments, Radio Telescopes**Thomson Scattering**, see Scattering**Three Body Problems**, see also N-body Problems

Studies of the Stellar Three-body Problem

*Söderhjelm, S.* **107**, 54

On the Stability of the Triangular Points in the Elliptic Restricted Problem

*Meire, R.* **110**, 152

Method for Constructing Periodic Orbits (Text in French)

*Edelman, C.* **111**, 220

A Manifold of Periodic Orbits in the Planar General Three-body Problem with Equal Masses

*Davoust, E., Broucke, R.* **112**, 305

**Tides**

On the Linear Adiabatic Oscillations of a Uniformly and Synchronously Rotating Component of a Binary

*Martens, L., Smeyers, P.* **106**, 317

Tidal Evolution in Close Binary Systems for High Eccentricity

*Hut, P.* **110**, 37

On the Origin of Low Mass Cataclysmic Binaries

*Livio, M.* **112**, 190

Erratum: Tidal Evolution in Close Binary Systems for High Eccentricity

*Hut, P.* **116**, 351

**Time Observations**

The New Definition of Universal Time

*Aoki, S., Guinot, B., Kaplan, G.H., Kinoshita, H., McCarthy, D.D., Seidelmann, P.K.* **105**, 359

Danjon Astrolabe Observations at Rio de Janeiro: Time and Latitude

*Andrei, A.H., d'Ávila, V.A., Penna, J.L., Queiroz, M.* **110**, 183; **48**, 485

Time and Latitude Results of Observations Made at Merate Observatory with the Astrolabe for the Year 1981

*Buffoni, L., Carta, F., Chlistovsky, F., Manara, A., Mazzoleni, F.* **112**, 179; **49**, 509

Results of Observations Made in Paris with the Astrolabe (Text in French)

*Chollet, F., Débarbat, S., Hascoët, J.C., Lam, S.K., Texier, P., Tomas, M.* **115**, 217; **50**, 195

**Transition Probabilities**

On the Establishment of Internally Consistent Solar Scales of Oscillator Strengths and Abundances of Chemical Elements. III. Oscillator Strengths Obtained from Equivalent Widths of 360 Fe I Lines

*Gurtovenko, E.A., Kostik, R.I.* **106**, 378; **47**, 193

Absolute Transition Probabilities in the Spectra of Eu I and Eu II

*II. Line Intensity Measurements*

*Karner, C., Meyer, G., Träger, F., zu Putlitz, G.* **107**, 161

The Collision Strength for the N III  $\lambda$  1750 Transition

*Nussbaumer, H., Storey, P.J.* **109**, 271

**Transition Zone**, see Solar Corona, Stellar Occultations

On the Theory of Thermally Sustained Stellar Winds

*Souffrin, P.* **106**, 14

On the Search for Transition Zone Lines in Late A Type Stars

*Crivellari, L., Praderie, F.* **107**, 75

**Triple Stars**, see Multiple Stars

Studies of the Stellar Three-body Problem

*Söderhjelm, S.* **107**, 54

**Turbulence**, see also Convection

Alfvenic Fluctuations as Asymptotic States of MHD Turbulence

*Grappin, R., Frisch, U., Leorat, J., Pouquet, A.* **105**, 6

Lower Atmosphere and Solar Seeing: an Experiment of Simultaneous Measurements of Nearby Turbulence by Thermal Radiosondes, by Angle of Arrival Statistics and Image Motion Observation

*Borgnino, J., Ceppatelli, G., Ricort, G., Righini, A.* **107**, 333

Model Chromospheres of RS CVn Stars: Balmer Line Profiles in  $\lambda$  Andromedae

*Mullan, D.J., Cram, L.E.* **108**, 251

Turbulence Variations for the Three Cepheids SV Vul, X Cyg, and  $\delta$  Cep

Benz, W., Mayor, M. **111**, 224

Line Profile Fluctuations in a Turbulent Atmosphere

Loucif, M.L., Magnan, C. **112**, 287

**Twenty-one-cm Line**, see Radio Frequency Lines: 21-cm Line

**UBV Photometry**, see Clusters (globular and open), Magnitudes, Photometry

**Universe**, see Cosmology

Baryon Number Creation and Phase Transitions in the Early Universe

Hut, P., Klinkhamer, F.R. **106**, 245

A Possible Large-scale Anisotropy of the Universe

Fliche, H.H., Souriau, J.M., Triay, R. **108**, 256

**Uranus**

Observations of Uranus Made with the Danjon Astrolabe of Santiago, Chile, During 1979

Noël, F., Barros, S. **107**, 413; **47**, 481

**UV Ceti Stars**, see Flare Stars

**UV Radiation**, see also under the different Objects

Diagnostic of Coronal Heating Processes Based on the Emission Measure of UV Lines

Torricelli-Ciamponi, G., Einaudi, G., Chiuderi, C. **105**, L1

Hot Stars in the Bulge of M 31: Upper Limit to the Star Formation Rate

Deharveng, J.M., Joubert, M., Monnet, G., Donas, J. **106**, 16

On the Ionization and Velocity Structure of Expanding Circumstellar Envelopes

Drechsel, H., Rahe, J. **106**, 70

The Variable Shell Star HR 5999. VI. Strong Chromospheric and Transition Region Emission Lines in the Ultraviolet Spectrum of a Herbig Ae Star

Tjin A Djie, H.R.E., Thé, P.S., Hack, M., Selvelli, P.L. **106**, 98

An Alternative Procedure for Extracting IUE Low Resolution Spectra

Crivellari, L., Morossi, C. **106**, 332

A Study of Ultraviolet Spectroscopic and Light Variations in the X-ray Binaries LMC X-4 and SMC X-1

van der Klis, M., Hammerschlag-Hensberge, G., Bonnet-Bidaud, J.M., Ilovaisky, S.A., Mouchet, M., Glencross, W.M., Willis, A.J., van Paradijs, J., Zuiderwijk, E.J., Chevalier, C. **106**, 339

The Correlation Between Diffuse Far Ultraviolet Background and Line of Sight Hydrogen Column: Dust Scattering and H<sub>2</sub> Fluorescence

Jakobsen, P. **106**, 375

IUE Ultraviolet Spectrophotometry of 15 Galactic Wolf-Rayet Stars

Nussbaumer, H., Schmutz, W., Smith, L.J., Willis, A.J. **106**, 379; **47**, 257

The Spectra of Late-type Dwarfs and Sub-dwarfs in the Near Ultraviolet. I. Line Identifications

Beckman, J.E., Crivellari, L., Selvelli, P.L. **106**, 380; **47**, 295

Picture Gallery: a Structured Presentation of OAO-2 Photometric Data Supported by OAO-2 Spectrophotometric Data and UBV, ANS and TD1 Observations

Koornneef, J., Meade, M.R., Wesselius, P.R., Code, A.D., van Duinen, R.J. **106**, 381; **47**, 341

IUE Data Reduction. The Parameterization of the Motion of the IUE Réseau Grids and Spectral Formats as a Function of Time and Temperature

Thompson, R.W., Turnrose, B.E., Bohlin, R.C. **107**, 11

On Excitation Through Radiative Pumping of the Fe II UV-Mult. 191  $\lambda\lambda$  1785–88 Å Observed with IUE during the Eclipse of 32 Cyg

Hempe, K., Reimers, D. **107**, 36

Mass Loss Rates in the Open Cluster IC 1805

Llorente de Andrés, F., Burki, G., Ruiz del Arbol, J.A. **107**, 43

On the Search for Transition Zone Lines in Late A Type Stars

Crivellari, L., Praderie, F. **107**, 75

The Ultraviolet Spectrum of CH Cygni During the Outburst Started in 1977

Hack, M., Selvelli, P.L. **107**, 200

Variability and Mass Loss in the Extreme Supergiant  $\zeta^1$  Sco

Burki, G., Heck, A., Bianchi, L., Cassatella, A. **107**, 205

Detection of Further Red Giants with "Hybrid" Atmospheres and a Possible Correlation with Double Circumstellar Mg II and Ca II Lines

Reimers, D. **107**, 292

The Pulsation of the Outer Layers of the Beta Cephei-type Variable BW Vul

Burger, M., de Jager, C., van den Oord, G.H.J., Sato, N. **107**, 320

Mg II  $h$  and  $k$  Line Observations of Delta Scuti Variables

Fracassini, M., Pasinetti, L.E. **107**, 326

UV and Visible Photometry of the Brightest Pleiades Stars

Golay, M., Mauon, N. **107**, 415; **47**, 547

UV Photometric Data on Standard A, F and Am Stars Observed by S2/68

Van't Veer-Menneret, C., Faraggiana, R., Burkhart, C., Oberto, Y. **107**, 416; **47**, 595

Chromospheric Effects of XUV Radiation Emitted During Solar Flares

Machado, M.E., Hénoux, J.C. **108**, 61

Analysis of the IUE and Optical Spectra of the Peculiar Be Star HD 87643

de Freitas Pacheco, J.A., Gilra, D.P., Potiasch, S.R. **108**, 111

The Ultraviolet Spectrum of the Old Novae HR Del, GK Per, RR Pic, and RS Oph

Rosino, L., Bianchini, A., Rafanelli, P. **108**, 243

Stellar Wind in the Nucleus of IC 2149

Perinotto, M., Benvenuti, P., Cerruti-Sola, M. **108**, 314

Spectral Analysis of the OB Subdwarf HD 149 382

Baschek, B., Kudritzki, R.P., Scholz, M., Simon, K.P. **108**, 387

A Brightening of the Symbiotic Variable SY Muscae

Michalitsianos, A.G., Kafatos, M., Feibelman, W.A., Wallerstein, G. **109**, 136

Contribution of the Warm Intercloud Medium to the Diffuse Ultraviolet Background

Deharveng, J.M., Joubert, M., Barge, P. **109**, 179

UV, Optical and IR Observations of the Cepheid R Muscae

Eichendorf, W., Heck, A., Caccin, B., Russo, G., Sollazzo, C. **109**, 274

The Pulsation of the Outer Layers of the Beta Cephei Star  $\sigma$  Sco

Burger, M., de Jager, C., van den Oord, G.H.J. **109**, 289

Magnetic Structure in Cool Stars. V. Chromospheric and Transition-region Emission from Giants

Oranje, B.J., Zwaan, C., Middelkoop, F. **110**, 30

The Interacting Early-type Contact Binary SV Centauri

Drechsel, H., Rahe, J., Wargau, W., Wolf, B. **110**, 246

New Evidence of Strong UV Radiation in TT Ari

Wargau, W., Drechsel, H., Rahe, J., Vogt, N. **110**, 281

## On the Structure of the Outer Layers of Cool Carbon Stars

Querci, F., Querci, M., Wing, R.F., Cassatella, A., Heck, A. **111**, 120

## Rocket Photographs of Fine Structure and Wave Patterns in the Solar Temperature Minimum

Bonnet, R.M., Bruner, M., Acton, L.W., Decaudin, M., Foing, B. **111**, 125

## X-ray and UV-emission from Supernova Shock Waves in Stellar Winds

Fransson, C. **111**, 140

A Search for Medium Z Elements in the Ultraviolet Spectrum of  $\kappa$  Cancri

Davison, J.P., Bord, D.J. **111**, 362

## The OB Subdwarf Feige 66, a Chemical-composition Twin to HD 149382

Baschek, B., Höflich, P., Scholz, M. **112**, 76

## ANS Ultraviolet Photometry, Catalogue of Point Sources

Wesseli, P.R., Van Duinen, R.J., de Jonge, A.R.W., Aalders, J.W.G., Luinge, W., Wildeman, K.J. **112**, 178; **49**, 427

## The Ultraviolet Spectrum of KQ Puppis (Boss 1985)

Altamore, A., Giangrande, A., Viotti, R. **112**, 179; **49**, 511

## On the Linearity of the SWP Camera of the International Ultraviolet Explorer (IUE): A Correction Algorithm

Holm, A., Bohlin, R.C., Cassatella, A., Ponz, D.P., Schiffer, F.H. **112**, 341

## First Ultraviolet Observations of Two New Cataclysmic Variables I E0643-1648 and 4 U1849-31

Bonnet-Bidaud, J.M., Mouchet, M., Motch, C. **112**, 355

## Discovery of Ca II Absorption at 1840 Å in the IUE Spectra of Two Helium-rich White Dwarfs

Koester, D., Vauclair, G., Weidemann, V., Zeidler-K.T., E.M. **113**, L13

## Sk 143: An SMC Star with a Galactic-type Ultraviolet Interstellar Extinction

Lequeux, J., Maurice, E., Prévot-Burnichon, M.-L., Prévot, L., Rocca-Volmerange, B. **113**, L15

## IUE Observations of Dwarf Novae During Active Phases

Klare, G., Krautter, J., Wolf, B., Stahl, O., Vogt, N., Wargau, W., Rahe, J. **113**, 76

## The Outer Atmosphere Structure of Three Late Type Stars

de Castro, E., Fernández-Figueroa, M.J., Rego, M. **113**, 94

Observed and Computed UV Spectral Distribution of A and F Stars. Determination of  $T_e$  and  $\log g$ 

Malagnini, M.L., Faraggiana, R., Morossi, C., Crivellari, L. **114**, 170

## The UV Spectrum of the Old Nova HR Del at Different Orbital Phases

Friedjung, M., Andritsch, Y., Puget, P. **114**, 351

## The Visible and Ultraviolet Continuum from a Herbig-Haro Object in the Core of M 16 (NGC 6611)

Meaburn, J. **114**, 367

## The Width of Echelle Orders in IUE Images as Derived with the Astronomical Image Display and Analysis (AIDA) System in Tübingen

de Boer, K.S., Preussner, P.-R., Grewing, M. **115**, 128

The Mid-ultraviolet Spectrum of  $\epsilon$  Aurigae

Castelli, F., Hoekstra, R., Kondo, Y. **115**, 217; **50**, 233

## Absolute Ultraviolet Fluxes of Elliptical Galaxies as Observed with the Astronomical Netherlands Satellite (ANS)

de Boer, K.S. **115**, 218; **50**, 247

## Chromospheric Mg II Emission in A5 to K5 Main Sequence Stars from High Resolution IUE Spectra

Blanco, C., Bruca, L., Catalano, S., Marilli, E. **115**, 280

## Measurements of Solar Transition Zone Velocities and Line Broadening Using the Ultraviolet Spectrometer and Polarimeter on the Solar Maximum Mission

Simon, G., Mein, P., Vial, J.C., Shine, R.A., Woodgate, B.E. **115**, 367

## The Far-UV Spectrum of the Low-excitation Planetary Nebula HD 138403

Surdej, J., Heck, A. **116**, 80

Atmospheric Parameters and Carbon Abundance of White Dwarfs of Spectral Types C<sub>2</sub> and DC

Koester, D., Weidemann, V., Zeidler-K.T., E.-M. **116**, 147

## Interpretation of Line Profiles of the Symbiotic Star V 1016 Cyg

Kindl, C., Marxer, N., Nussbaumer, H. **116**, 265

## Mass Loss from Extreme Helium Stars. Detailed UV-line Fits for HD 160641, BD -9°4395 and BD +10°2179

Hamann, W.-R., Schönberner, D., Heber, U. **116**, 273

## Ultraviolet Spectrum of the Sky Background at Different Galactic Latitudes

Zoerova, A.M., Severny, A.B., Granitzky, L.V., Hua, C.T., Cruvellier, P., Courtès, G. **116**, 312

**Variable Stars**, see also Beta Cephei Stars, Beta Canis Majoris Stars, Cataclysmic Variables, Cepheids, Delta Scuti Stars, Eclipsing Binaries, Flare Stars, Mira Stars, P Cygni Stars, R. Coronae Borealis Stars, RR Lyrae Stars, RV Tauri Stars, Spectrum Variables, Symbiotic Stars, T Tauri Stars, VV Cephei Stars, W Ursae Majoris Stars, YY Orionis Stars

## The Symbiotic Star CI Cygni: S-process Episode or Accretion Event?

Kenyon, S.J., Webbink, R.F., Gallagher, J.S., Truran, J.W. **106**, 109

## HR 4975: A Possible Early-Type Contact System with Unequal Components

Waelkens, C., Bartholdi, P. **108**, 51

## Does 28 CMa Have a Photometric Period Differing from Its Spectroscopic Period?

Baade, D. **110**, L15

## List of 333 Variable, Microvariable or Suspected Variable Stars Detected in the Geneva Photometry

Rufener, F., Bartholdi, P. **110**, 184; **48**, 503

## The Detection of Compact Companions in OB-runaway Stars

Sybesma, C.H.B., de Loore, C. **111**, 229

A New Analysis of Light Variations in  $\mu$  Cephei

Mantegazza, L. **111**, 295

## Non-linear Stellar Oscillations. Two-Mode Interactions

Perdang, J., Blacher, S. **112**, 35

## Further VBLUW Photometry of the S Doradus Type Variables S Dor and HDE 269006 in the LMC and a Discussion on Their Temperatures

van Genderen, A.M. **112**, 61

## AG Car: A Galactic S Dor Variable

Wolf, B., Stahl, O. **112**, 111

## New Variable Stars in the Direction of the Bright Cloud B in Sagittarius

Terzan, A., Bijaoui, A., Ju, K.H., Ounnas, C. **112**, 396; **49**, 715

**Velocities**, see Radial Velocities, Space Motion**Venus**A First Order Approximation Model of CO<sub>2</sub> Infrared Bands in the Venusian Lower Thermosphere

Battaner, E., Rodrigo, R., López-Puertas, M. **112**, 229

**Very Long Baseline Interferometry (VLBI)**

On Symmetric Structure in Compact Radio Sources

*Phillips, R.B., Mutel, R.L.* **106**, 21

VLBI Observations of 12 Compact Radio Sources North of Declination  $70^\circ$

*Eckart, A., Hill, P., Johnston, K.J., Pauliny-Toth, I.I.K., Spencer, J.H., Witzel, A.* **108**, 157

VLBI Observations of the Core Sources of a Sample of Spiral Galaxies

*Hummel, E., Fanti, C., Parma, P., Schilizzi, R.T.* **114**, 400

The Connection of a Catalogue of Stars with an Extragalactic Reference Frame

*Froeschlé, M., Kovalevsky, J.* **116**, 89

**Violet Shift**, see Red Shift

**Virial Theorem**

The Equilibrium and Bifurcation of Rotating Stellar Systems

*Wiegandt, R.* **105**, 326

Galaxy Groups: Sample-dependence of Virial Properties

*Mardirossian, F., Mezzetti, M., Giuricin, G.* **111**, 86

**Visual Binaries**, see Double Stars, visual

*uvby* photometry of Visual Double Stars: Absolute Magnitudes of Intrinsically Bright Stars

*Olsen, E.H.* **110**, 179; **48**, 165

ADS 3230: Two Possible Solutions in the Computation of the Orbital Elements (Text in French)

*Scardia, M.* **114**, 419; **50**, 19

**VLBI**, see Very Long Baseline Interferometry

**VV Cephei Stars**

On Excitation Through Radiative Pumping of the Fe II UV-Mult. 191  $\lambda\lambda$ 1785–88 Å Observed with IUE during the Eclipse of 32 Cyg

*Heime, K., Reimers, D.* **107**, 36

The Ultraviolet Spectrum of KQ Puppis (Boss 1985)

*Altamore, A., Giangrande, A., Viotti, R.* **112**, 179; **49**, 511

**W Ursae Majoris Stars**, see also Eclipsing Binaries

On the Evolutionary State of the W Ursae Majoris Contact Binaries

*Van Hamme, W.* **105**, 389

Detached  $\rightarrow$  Contact Scenario for the Origin of WUMa Stars

*Vilhu, O.* **109**, 17

On the Stability and Evolution of Contact Binaries. I

*Rahunen, T.* **109**, 66

Observations and Analysis of the Light Curve of AE Phoenixis in 1978

*Walter, K.* **109**, 107

On the Stability of Age-zero Contact Binaries. II

*Hazlehurst, J., Höppner, W., Refsdal, S.* **109**, 117

Determination of Parameters of W UMa Systems. III: CC Com, YY Eri, V502 Oph and TY Pup

*Maceroni, C., Milano, L., Russo, G.* **111**, 212; **49**, 123

Contact Binaries: Angular Momentum Loss In and Out of Contact

*Rucinski, S.M.* **112**, 273

Estimated Absolute Dimensions and the Inferred Lifetime and Angular Momentum of W Ursae Majoris Contact Binaries

*Van Hamme, W.* **116**, 27

**W Virginis Stars**, see Cepheids

**Wave length**

The Spectrum of the WC-O VI Star ST 3 in the Yellow Range

*Thévenin, F., Pitault, A.* **108**, 195

Terrestrial O<sub>2</sub> Lines Used as Wavelength References: Comparison of Measurements and Model Computations

*Balthasar, H., Thiele, U., Wöhl, H.* **114**, 357

**White Dwarfs**

The Influence of the C<sub>2</sub> Absorption Bands on the *U*, *B*, *V* Magnitudes of Carbon White Dwarfs

*Durret, F., Vauclair, G.* **106**, 67

Spectroscopic and Photometric Observations of White Dwarfs

*Koester, D., Weidemann, V.* **108**, 406

IUE Observation of UV Absorption in the Spectrum of the C<sub>2</sub> White Dwarf L1363-3

*Vauclair, G., Weidemann, V., Koester, D.* **109**, 7

Visual and Near Infrared Photometry of 2 A 0311-227

*Motch, C., van Paradijs, J., Pedersen, H., Ilovaisky, S.A., Chevalier, C.* **110**, 316

Discovery of Ca II Absorption at 1840 Å in the IUE Spectra of Two Helium-rich White Dwarfs

*Koester, D., Vauclair, G., Weidemann, V., Zeidler-K.T., E.M.* **113**, L13

On the "Just Overlapping Line Approximation" for Molecular Absorption

*Zeidler-K.T., E.-M., Koester, D.* **113**, 173

Comments on Radial White Dwarf Accretion

*Kuijpers, J., Pringle, J.E.* **114**, L4

PS 74: The Discovery of a New SU UMa Type Dwarf Nova with High Orbital Inclination

*Barwig, H., Hunger, K., Kudritzki, R.P., Vogt, N.* **114**, L11

Atmospheric Parameters and Carbon Abundance of White Dwarfs of Spectral Types C<sub>2</sub> and DC

*Koester, D., Weidemann, V., Zeidler-K.T., E.-M.* **116**, 147

Spectroscopic Identification of White Dwarfs in Galactic Clusters. II. NGC 2516

*Reimers, D., Koester, D.* **116**, 341

**Wolf-Rayet Stars**, see also Close Binaries

Evolutionary Scenarios Leading Massive Stars to WR Stars: Their Mutual Importance; the Role of Mixing

*Maeder, A.* **105**, 149

On the Evolutionary Scenario of Massive Close Binaries with Primary Masses Between 20  $M_\odot$  and 160  $M_\odot$

*Vanbeveren, D.* **105**, 260

Wolf-Rayet Stars in Extragalactic H II Regions: Discovery of a Peculiar WR in IC 1613/ 3

*D'Odorico, S., Rosa, M.* **105**, 410

IUE Ultraviolet Spectrophotometry of 15 Galactic Wolf-Rayet Stars

*Nussbaumer, H., Schmutz, W., Smith, L.J., Willis, A.J.* **106**, 379; **47**, 257

The Variable, Single-line WN8 Star HD 86161: Another Wolf-Rayet Star with a Low-mass Companion

*Moffat, A.F.J., Niemela, V.S.* **108**, 326

Wolf-Rayet Stars in Extragalactic H II Regions. II. NGC 604 — a Giant H II Region Dominated by Many Wolf-Rayet Stars

*Rosa, M., D'Odorico, S.* **108**, 339



## R 136: WN or O Spectral Characteristics?

*Vreux, J.M., Dennefeld, M., Andriat, Y.* **113**, L10

## The Theoretical Expected Galactic Distribution of WR Runaway Stars

*Vanbeveren, D.* **113**, 205

## The Fastest Runaway Wolf-Rayet Star of Population I in the Galaxy, 209 BAC: Evidence for a Low Mass Companion

*Moffat, A.F.J., Lamontagne, R., Seggewiss, W.* **114**, 135

## Spectrophotometry of Wolf-Rayet Star Candidates in M 33

*Wampler, E.J.* **114**, 165

## The Ultimate Fate of Wolf-Rayet Stars as Supernovae

*Maeder, A., Lequeux, J.* **114**, 409

## The Theoretically Expected X-ray Luminosity and the Binary Nature of Wolf-Rayet Runaway Stars

*Vanbeveren, D., Van Rensbergen, W., de Loore, C.* **115**, 69

## M1-67: A Wind-blown Bubble Carried Along by the High-velocity WR Star 209 BAC?

*Solf, J., Carsenty, U.* **116**, 54

## X-ray Binaries, see also X-ray Radiation

On the Evolutionary Scenario of Massive Close Binaries with Primary Masses Between 20  $M_{\odot}$  and 160  $M_{\odot}$ 

*Vanbeveren, D.* **105**, 260

## The 6-day Photometric and Spectroscopic Periods in SS 433

*Matese, J.J., Whitmire, D.P.* **106**, L9

## Vertical Structure of Accretion Disks

*Meyer, F., Meyer-Hofmeister, E.* **106**, 34

## A Study of Ultraviolet Spectroscopic and Light Variations in the X-ray Binaries LMC X-4 and SMC X-1

*van der Klis, M., Hammerschlag-Hensberge, G., Bonnet-Bidaud, J.M., Ilovaisky, S.A., Mouchet, M., Glencross, W.M., Willis, A.J., van Paradijs, J., Zuiderwijk, E.J., Chevalier, C.* **106**, 339

## Changing Orientation of Dipole and Spin Axes in Binary X-ray Pulsars

*Wang, Y.-M., Robnik, M.* **107**, 222

## The Hard X-ray Spectrum of Cygnus X-1

*Steinle, H., Voges, W., Pietsch, W., Reppin, C., Trümper, J., Kendziorra, E., Staubert, R.* **107**, 350

## Observation of Hard X-rays Line Emission from Her X-1

*Polcaro, V.F., Bazzano, A., La Padula, C., Ubertini, P., Vialito, G., Manchanda, R.K., Damle, S.V.* **108**, 249

## Discovery of Fast Optical Activity in the X-ray Source GX 339-4

*Motch, C., Ilovaisky, S.A., Chevalier, C.* **109**, L1

## Non-thermal Emission from Relativistic Accretion Disks: A Simple Model for Axisymmetric Inhomogeneous Sources

*Pineault, S.* **109**, 294

## Photoelectric Photometry of 4 U 2129+47

*Calafat, R., Canal, R., Núñez, J., Torra, J.* **110**, 23

## Tidal Evolution in Close Binary Systems for High Eccentricity

*Hut, P.* **110**, 37

## Visual and Near Infrared Photometry of 2 A 0311-227

*Motch, C., van Paradijs, J., Pedersen, H., Ilovaisky, S.A., Chevalier, C.* **110**, 316

## GX339-4: Cyclotron Radiation from an Accretion Flow

*Fabian, A.C., Guilbert, P.W., Motch, C., Ricketts, M., Ilovaisky, S.A., Chevalier, C.* **111**, L9

## On the Spin Down Episodes of Vela X-1

*Molteni, D., Rapisarda, M., Re, S., Robba, N.R.* **111**, 365

## Color Variability and Optical Light Curve of 2S0921-630

*Chevalier, C., Ilovaisky, S.A.* **112**, 68

## First Ultraviolet Observations of Two New Cataclysmic Variables 1 E0643-1648 and 4 U1849-31

*Bonnet-Bidaud, J.M., Mouchet, M., Motch, C.* **112**, 355

## On the Short-term Variability of HD 153919 (=4U1700-37=V884 Sco)

*van Paradijs, J., van der Woerd, H.* **113**, 27

## Plasma-magnetospheric Interaction in X-ray Sources: An Analysis of the Linear Kelvin-Helmholtz Instability

*Wang, Y.-M., Welter, G.L.* **113**, 113

## X-ray Observations of Single-line Spectroscopic Binaries

*Singh, K.P., Naranan, S.* **113**, 167

## Bulge X-ray Sources and Novae in M 31

*Vader, J.P., van den Heuvel, E.P.J., Lewin, W.H.G., Takens, R.J.* **113**, 328

## The Nature of the 1E1145.1-6141 Optical Counterpart

*Ilovaisky, S.A., Chevalier, C., Motch, C.* **114**, L7

## UBV-polarimetry of the X-ray Binaries HD 77581 (4U 0900-40), HD 153919 (4U 1700-37) and of HD 152667

*Östreicher, R., Schulte-Ladbeck, R.* **114**, 328

## The Cycle-to-cycle Variability of Cygnus X-3

*van der Klis, M., Bonnet-Bidaud, J.M.* **114**, 422; **50**, 129

## The Theoretically Expected X-ray Luminosity and the Binary Nature of Wolf-Rayet Runaway Stars

*Vanbeveren, D., Van Rensbergen, W., de Loore, C.* **115**, 69

## The X-ray Flux Variations of Cygnus X-2

*Bonnet-Bidaud, J.M., van der Klis, M.* **116**, 232

## Erratum: Tidal Evolution in Close Binary Systems for High Eccentricity

*Hut, P.* **116**, 351

## X-ray Radiation and ... Sources, see also under the different Objects and Background Radiation, X-ray Binaries

X- and  $\gamma$ -ray Superfast Photometry

*Bonazzola, S., Chevreton, M.* **105**, 1

## Differential Rotation, Magnetic Activity and X-ray Emission of Late Type Giants

*Belvedere, G., Chiuderi, C., Paternò, L.* **105**, 133

## On the Absence of Coronal Line Emission from Orion Population Stars

*Gahm, G.F., Krautter, J.* **106**, 25

## An Assessment of the Detectability of X-ray Emission from Winds in Active Galactic Nuclei and Quasars

*Beltrametti, M., Drew, J.* **106**, 153

## Hard X-ray Emission (15-150 keV) from the Region of 4U 515+38

*Ubertini, P., Bazzano, A., La Padula, C., Polcaro, V.F.* **106**, 174

## Some Remarks on the Spectra of X-ray Bursts

*van Paradijs, J.* **107**, 51

## On the Possibility of Observing Iron Line Emission from the Surface of Magnetized Neutron Stars

*Yahel, R.Z.* **109**, 1

## Optical Investigations of Two X-ray Clusters of Galaxies: 0430.6-6133 and 0626.7-5426

*Materne, J., Chincarini, G., Tarengi, M., Hopp, U.* **109**, 238

## The Effects of Non-equilibrium Ionization on the X-ray Emission of Supernova Remnants

*Gronenschild, E.H.B.M., Mewe, R.* **110**, 180; **48**, 305

## Radio and X-ray Observations of the Abell 2241 Galaxy Clusters

*Bijleveld, W., Valentijn, E.A.* **111**, 50

## Radio and X-ray Galaxies in Abell 566

*Harris, D.E., Robertson, J.G., Dewdney, P.E., Costain, C.H.* **111**, 299

## Super-critical X-ray Luminosities: The Structure and Stability of a Radiation-supported Plasma Layer

*Wang, Y.-M.* **112**, 24

- Search for (Globular) Clusters in M 31. III. Structural Properties:  
X-ray Sources and Comparison with Galactic Globulars  
*Battistini, P., Bónoli, F., Buonanno, R., Corsi, C.E., Fusi Pecci, F.* **113**, 39
- X-rays from a Peculiar Nucleus Galaxy NGC 2196  
*Agrawal, P.C., Singh, K.P.* **113**, 73
- Bulge X-ray Sources and Novae in M 31  
*Vader, J.P., van den Heuvel, E.P.J., Lewin, W.H.G., Takens, R.J.* **113**, 328
- NGC 1961: Stripping of a Supermassive Spiral Galaxy  
*Shostak, G.S., Hummel, E., Shaver, P.A., van der Hulst, J.M., van der Kruit, P.C.* **115**, 293
- Fast Coherent Oscillations in Variable X-ray Sources and Bursters  
*Livio, M., Bath, G.T.* **116**, 286
- X-ray Radiation, solar**
- About the Relation Between Radio and Soft X-ray Emission in Case of Very Weak Solar Activity  
*Fürst, E., Benz, A.O., Hirth, W.* **107**, 178
- Chromospheric Effects of XUV Radiation Emitted During Solar Flares  
*Machado, M.E., Hénoux, J.C.* **108**, 61
- Impulsive and Gradual Hard X-ray Sources in a Solar Flare  
*Vilmer, N., Kane, S.R., Trottet, G.* **108**, 306
- Modification of the Ionization Balance of the Upper Chromosphere Due to XUV Irradiation in Flares  
*Chambe, G.* **113**, 31
- X-ray Spectroscopy**
- Observation of Hard X-rays Line Emission from Her X-1  
*Polcaro, V.F., Bazzano, A., La Padula, C., Ubertini, P., Violetto, G., Manchanda, R.K., Damle, S.V.* **108**, 249
- The Solar Spectrum of O IV, Including Photoexcitation by Fe IX  $\lambda 71.07 \text{ \AA}$   
*Kastner, S.O.* **108**, 361
- Soft X-ray Filter Spectroscopy of the Supernova Remnants Vela X and Puppis A  
*Burkert, W., Zimmermann, H.U., Aschenbach, B., Bräuninger, H., Williamson, F.* **115**, 167
- YY Orionis Stars**
- YY Orionis Line Profiles in the Spectrum of RW Aurigae  
*Appenzeller, I., Wolf, B.* **105**, 313
- S CrA and CoD  $-35^\circ 10525$ , Two Bright Young Stars  
*Bertout, C., Carrasco, L., Mundt, R., Wolf, B.* **107**, 412; **47**, 419
- Zeeman Effect**, see Magnetic Field
- Zodiacal Light**, see also Interplanetary Matter
- Stability and Symmetry of Zodiacal Light Polarization in the Antisolar Hemisphere  
*Leinert, C., Planck, B.* **105**, 364
- Stability of the Zodiacal Light from Minimum to Maximum of the Solar Cycle (1974-1981)  
*Leinert, C., Richter, I., Planck, B.* **110**, 111
- Search for Short Term Variations of Zodiacal Light and Optical Detection of Interplanetary Plasma Clouds  
*Richter, I., Leinert, C., Planck, B.* **110**, 115
- Helios Zodiacal Light Measurements - a Tabulated Summary  
*Leinert, C., Richter, I., Pitz, E., Hanner, M.* **110**, 355
- A Scattering Model for the Zodiacal Light Particles  
*Schiffer, R., Thielheim, K.O.* **116**, 1

The

1.00

1.01

1.02

1.03

1.04

1.05

1.06

1.07

1.08

1.09

1.10

1.11

1.12

1.13

1.14

1.15

1.16

1.17

1.18

1.20

1.21

1.22

1.23

1.24

1.25

1.26

1.27

1.28

1.30

1.31

1.32

1.33

1.34

2.01

2.02

2.03

2.04

2.05

2.06

2.07

2.08

2.09

2.10

2.11

2.12

2.13

2.14

2.15

2.16

2.17

2.18

2.20

2.21

2.22

## Thesaurus

- 1.00 Aberration  
 1.01 Absolute Energy Distribution  
 1.02 Absolute Magnitudes  
 1.03 Absorption, *see* *interstellar Absorption, Line Formation*  
 1.04 Abundances, interstellar  
 1.05 Abundances, solar, *see* *Solar System*  
 1.06 Abundances, stellar, *see* *Isotopes, Metal Abundance, Stellar Atmospheres, and under the different Objects*  
 1.07 Accretion, *see* *Stellar Wind*  
 1.08 Acoustic Waves, *see* *Solar Chromosphere, Stellar Chromospheres*  
 1.09 Algal Systems, *see* *Close Binaries*  
 1.10 Active Galaxies, *see* *Galaxies, Markarian Galaxies, Quasi-stellar Objects, Seyfert Galaxies, X-ray Radiation*  
 1.11 Aggregates  
 1.12 Airglow  
 1.13 Albedo  
 1.14 Alfvén Waves  
 1.15 Am Stars, *see* *Metallic Line Stars*  
 1.16 Andromeda Nebula, *see* *M 31, Galaxies (individual)*  
 1.17 Antimatter  
 1.18 Apex of Solar Motion, *see* *Solar Motion*  
 1.20 Apsidal Motion  
 1.21 Ap Stars, *see* *Peculiar A Stars*  
 1.22 Artificial Satellites  
 1.23 Associations  
 1.24 A Stars  
 1.25 Asteroids  
 1.26 Astrolabe Measurements, *see* *Astrometry, Latitude Observations, Time Observations*  
 1.27 Astrometric Binaries  
 1.28 Astrometry, *see* *Latitude Observations, Time Observations*  
 1.30 Astronomical Constants  
 1.31 Atlases  
 1.32 Atmospheres, *see* *Earth Atmosphere, Planetary Atmospheres, Solar Atmospheres, Stellar Atmospheres*  
 1.33 Atomic and Molecular Data, *see* *Collisions, Energy Levels, Line Broadening, Transition Probabilities*  
 1.34 Aurora  
  
 2.01 Background Radiation, *see* *Galactic Structure, Interstellar Radiation Field*  
 2.02 Balmer Discontinuity  
 2.03 Barium Stars  
 2.04 Be Stars, *see* *Emission Line Stars*  
 2.05 Beta Canis Majoris Stars  
 2.06 Beta Cephei Stars  
 2.07 Binary Stars, *see* *Cataclysmic Variables, Close Binaries, Double Stars, Eclipsing Binaries, Spectroscopic Binaries, Symbiotic Stars, W Ursae Majoris Stars, X-ray Binaries*  
 2.08 Black Holes  
 2.09 Barred Spiral Galaxies, *see* *Galaxies, Spiral Galaxies*  
 2.10 Blends  
 2.11 BL Lacertae Objects  
 2.12 Blue Stars  
 2.13 Blue Stragglers  
 2.14 Bolometric Correction  
 2.15 Bremsstrahlung, *see* *Plasmaphysics*  
 2.16 Bright Stars  
 2.17 B Stars, *see* *also Early Type Stars*  
 2.18 Bursts  
 2.20 BY Draconis Stars  
 2.21 Barr Effect, *see* *Spectroscopic Binaries*  
 2.22 Beta Lyrae Stars, *see* *Eclipsing Binaries*  
  
 3.01 C II Regions  
 3.02 Cataclysmic Variables, *see* *also Dwarf Novae*  
 3.03 Catalogues  
 3.04 Carbon Stars  
 3.05 Celestial Mechanics, *see* *also N-Body Problem, Precession, Three Body Problem, Time Observations*  
 3.06 Cepheids, *see* *also Delta Scuti Stars*  
 3.07 Chemical Composition, *see* *Abundances*  
 3.08 Chemical Reactions  
 3.09 Charge Transfer, *see* *Physical Processes*  
 3.10 Chromosphere, *see* *Solar Chromosphere, Stellar Chromospheres*  
 3.11 Circumstellar Matter, *see* *also Shell Stars*  
 3.12 Close Binaries, *see* *also Binary Stars, Cataclysmic Variables, Eclipsing Binaries, W Ursae Majoris Stars, X-ray Binaries*  
 3.13 Clouds, *see* *Interstellar Clouds*  
 3.14 Clusters, *see* *Clusters of Galaxies; Clusters, globular; Clusters, open*  
 3.15 Clusters of Galaxies  
 3.16 Clusters, globular  
 3.17 Clusters, open (*or* *galactic*)  
 3.18 Coalsack  
 3.20 Cocoon Stars, *see* *Protostars*  
 3.21 Collapse  
 3.22 Collisions, *see* *Atomic Data, Line Broadening*  
 3.23 Color Excesses  
 3.24 Color Magnitude Diagram, *see* *under the different Objects*  
 3.25 Colors, *see* *also under the different Objects*  
 3.26 Comets  
 3.27 Compact Galaxies, *see* *also Galaxies, Quasi Stellar Objects, Seyfert Galaxies*  
 3.28 Compact Objects, *see* *also Compact Galaxies*  
 3.29 Compton Scattering, *see* *Scattering*  
 3.30 Contact Binaries, *see* *Close Binaries, W Ursae Majoris Stars*  
 3.31 Convection, *see* *also Turbulence*  
 3.32 Cool Stars, *see* *Late Type Stars*  
 3.33 Corona, *see* *Solar Corona, Stellar Coronae*  
 3.34 Coronal Holes, *see* *Solar Corona*  
 3.35 Coronagraph  
 3.36 Cosmic Rays  
 3.37 Cosmogony  
 3.38 Cosmology, *see* *also Hubble Constant, Redshift*  
 3.40 Crab Nebula  
 3.41 Cross Section, *see* *Atomic Data*  
 3.42 Curve-of-Growth, *see* *Abundances*  
 3.43 Ca II Emission, *see* *Emission Lines, Emission Line Stars, Solar Prominences, Spectrum Variables, Stellar Chromospheres, Wilson-Bappu-Effect*  
 3.44 Center-to-Limb-Variation, *see* *Limb Brightening (Darkening)*  
 3.45 Composite Spectra, *see* *Spectroscopic Binaries*  
  
 4.01 Damping Constant, *see* *Atomic Data*  
 4.02 Dark Clouds, *see* *Dust, Interstellar Clouds, Molecular Clouds, Nebulae, Radio Frequency Lines*  
 4.03 Data Analysis, *see* *also Observational Methods, Line Profiles*  
 4.04 Degenerate Stars  
 4.05 Delta Scuti Stars, *see* *also Dwarf Cepheids*  
 4.06 Density Waves  
 4.07 Deuterium  
 4.08 Diameter Luminosity Relation  
 4.10 Diffusion  
 4.11 Distances, *see* *Parallaxes*  
 4.12 Double Galaxies, *see* *also Interacting Galaxies*  
 4.13 Double Stars, *visual*  
 4.14 Dust, *see* *also Grains, Interplanetary Dust, Interstellar Absorption, - Clouds, - Matter*  
 4.15 Dwarf Cepheids, *see* *Cepheids*  
 4.16 Dwarf Galaxies  
 4.17 Dwarf Novae, *see* *also Cataclysmic Variables*  
 4.18 Dwarf Stars  
 4.19 Dynamics, *see* *Stellar Dynamics*  
 4.20 Dynamo Theory

- 4.21 Delta Cephei Stars, *see Cepheids*  
 4.22 Doppler Width, *see Line Profiles*
- 5.01 Early Type Stars, *see also Be Stars, B Stars, Supergiants, Wolf Rayet Stars*  
 5.02 Earth  
 5.03 Earth Atmosphere, *see also Seeing*  
 5.04 Eclipsing Binaries, *see also Close Binaries, RS Canum Venaticorum Stars, VV Cephei Stars, W Ursae Majoris Stars*  
 5.05 Element Abundances, *see Abundances*  
 5.06 Element Formation, *see Nuclear Reactions, Nucleosynthesis*  
 5.07 Ellipsoidal Variables  
 5.08 Elliptical Galaxies, *see also Galaxies*  
 5.09 Eclipse, *see Solar Eclipse*  
 5.10 Emission Lines  
 5.11 Emission Line Stars, *see also Be Stars, Herbig Haro Objects, Wolf Rayet Stars, X-ray Binaries*  
 5.12 Energy Levels  
 5.13 Energy Spectra  
 5.14 Energy Transfer  
 5.15 Envelopes, *see Cataclysmic Variables, Circumstellar Matter, Mass Loss, P Cygni Stars, Protostars, Shell Stars, YY Orionis Stars*  
 5.16 Ephemerides  
 5.17 Equivalent Widths  
 5.18 Evolution, *see Galactic Evolution, Stellar Evolution, Evolution of Galaxies*  
 5.19 Equation of State  
 5.20 Evolution of Galaxies  
 5.21 Excitation, *see also Atomic Data*  
 5.22 Expansion  
 5.23 Extinction, *see Earth Atmosphere, Interstellar Absorption and Extinction*  
 5.24 Evershed Effect, *see Sunspots*
- 6.01 Faculae  
 6.02 Filaments, *see also Solar Activity, Supernovae and Supernova Remnants*  
 6.03 Fireballs  
 6.04 Fission  
 6.05 Flares, *see Flare Stars, Solar Flares*  
 6.06 Flare Stars  
 6.07 Formation of Stars, *see Star Formation*  
 6.08 Formation of Galaxies  
 6.10 Fraunhofer Lines, *see Line ...*  
 6.11 F Stars  
 6.12 Fundamental Stars, *see Astrometry, Celestial Mechanics*  
 6.13 FU Orionis Stars  
 6.14 Faraday Rotation, *see Polarization*  
 6.15 Forbidden Lines, *see Transition Probabilities*
- 7.01 Galactic Bulge, *see Galactic Structure*  
 7.02 Galactic Center  
 7.03 Galactic Clusters, *see Clusters, open*  
 7.04 Galactic Disk, *see also Galactic Rotation, Galactic Structure, Stellar Dynamics and Kinematics*  
 7.05 Galactic Evolution  
 7.06 Galactic Halo, *see also Halo*  
 7.07 Galactic Light, *see also Interstellar Radiation Field*  
 7.08 Galactic Nucleus, *see Galactic Center*  
 7.09 Galactic Dynamics, *see Stellar Dynamics and Kinematics*  
 7.10 Galactic Rotation  
 7.11 Galactic Structure, *see also Density Waves, Galactic Nucleus, Gould's Belt, Interstellar Matter, Radio Frequency Lines: 21 cm Line, Stellar Dynamics and Kinematics*  
 7.12 Galaxies, *see also Clusters of Galaxies, Compact Galaxies, Dwarf Galaxies, Elliptical Galaxies, Formation of Galaxies, Interacting Galaxies, Local Group, M 31, Magellanic Clouds, Protogalaxies, Quasi Stellar Objects, Ring Galaxies, Seyfert Galaxies, Spiral Galaxies*  
 7.13 Galaxies, Optical Observations, *see also Galaxies*
- 7.14 Galaxies, Radio Observations, *see also Galaxies, Radio Frequency Lines: 21 cm Line*  
 7.15 Galaxy, *see Galactic ...*  
 7.16 Gamma Ray Radiation and Sources  
 7.17 Gas Dynamics, *see also Alfvén Waves, Convection, Hydrodynamics, Plasma Physics*  
 7.18 Gegenschein, *see Zodiacal Light*  
 7.19 General Relativity, *see Cosmology, Relativistic Astrophysics*  
 7.20 Geophysics  
 7.21 Giants, *see also Late Type Stars, Supergiants*  
 7.22 Globular Clusters, *see Clusters, globular*  
 7.23 Globules  
 7.24 Gould's Belt  
 7.25 Grains, *see also Dust*  
 7.26 Granulation, *see Solar Granulation*  
 7.27 Gravitation, Gravitational Radiation  
 7.28 Groups of Galaxies, *see Clusters of Galaxies*  
 7.30 G Stars  
 7.31 Gyrosynchrotron Emission, Gyroresonance  
 7.32 Galilean Satellites, *see Satellites of Planets*  
 7.33 Galaxies, individual
- 8.01 H $\alpha$ , *see also Line Profiles*  
 8.02 H I Regions, *see Interstellar Clouds, Radio Frequency Lines: 21 cm Line*  
 8.03 H II Regions, *see also Interstellar Matter, Nebulae, Orion Nebula, Supernovae and Supernova Remnants*  
 8.04 Halo  
 8.05 Hanle Effect  
 8.06 Helium Stars  
 8.07 Herbig Haro Objects, *see also T Tauri Stars*  
 8.08 Hertzsprung Russell Diagram  
 8.10 High Velocity Clouds  
 8.11 High Velocity Stars  
 8.12 Horizontal Branch Stars, *see also Clusters, globular; RR Lyrae Stars*  
 8.13 HR Diagram, *see Hertzsprung Russell Diagram*  
 8.14 Hubble Constant, *see also Cosmology, Redshift*  
 8.15 Hydrodynamics, Hydromagnetics, *see also Accretion, Density Waves, Dynamo Theory, Gas Dynamics, Magnetohydrodynamics, Plasma Physics*
- 9.01 Identification, *see Optical Identification*  
 9.02 Infrared Radiation, *see also OH Sources, and under the different Objects*  
 9.03 Instability, *see also Datability*  
 9.04 Instability Strip  
 9.05 Instruments, *see also Observational Methods, Radio Telescopes*  
 9.06 Interacting Galaxies  
 9.07 Intergalactic Matter  
 9.08 Interiors, *see Stellar Evolution, Stellar Structure*  
 9.09 Interferometry, *see Double Stars, Speckle Interferometry, Very Long Base Line Interferometry*  
 9.10 Interplanetary Dust, *see also Interplanetary Matter, Zodiacal Light*  
 9.11 Interplanetary Magnetic Field  
 9.12 Interplanetary Matter, *see also Interplanetary Dust, Solar Wind, Zodiacal Light*  
 9.13 Interplanetary Space  
 9.14 Interstellar Absorption and Extinction  
 9.15 Interstellar Clouds, *see also Dust, Interstellar Absorption and Extinction, Radio Frequency Lines: Molecular Lines*  
 9.16 Interstellar Matter, *see also Abundance, interstellar; H II Regions, Nebulae, OH Sources, Radio Frequency Lines*  
 9.17 Interstellar Radiation Field  
 9.18 Interstellar Reddening, *see Interstellar Absorption and Extinction*  
 9.20 Intrinsic Colors  
 9.21 Ionization  
 9.22 Isotopes  
 9.23 Irregular Galaxies



- 10.01 Jeans' Instability  
 10.02 Jet  
 10.03 Jupiter, *see also* Planets  
 11.01 K-Effect, K-Term  
 11.02 Kelvin-Helmholtz-Instability, *see* Instability  
 11.03 Kinematics, *see* Stellar Dynamics and Kinematics  
 11.04 K Stars
- 12.01 Late Type Stars, *see also* Barium Stars, Carbon Stars, M Stars, S Stars  
 12.02 Latitude Observations  
 12.03 Limb Brightening, ... Darkening  
 12.04 Line Blanketing  
 12.05 Line Blending  
 12.06 Line Blocking  
 12.07 Line Broadening  
 12.08 Line Formation, *see also* Equivalent Widths  
 12.10 Line Identification, *see also* Atomic Data  
 12.11 Line Profiles  
 12.12 Lithium Depletion, *see* abundances, stellar  
 12.13 Local Group, *see also* M 31, Magellanic Clouds  
 12.14 Longitude Variations  
 12.15 Long-Period Variables, *see* Mira Stars  
 12.16 Luminosity Calibration, ... Function  
 12.17 Luminosity Stars  
 12.18 Lunar ..., *see* Moon  
 12.20 Lunar Occultation, *see* Occultation
- 13.01 M 31, *see* Galaxies, individual  
 13.02 Magellanic Clouds, *see also* Local Group  
 13.03 Magnetic Field, ... Flux, *see also* Dynamo Theory, Hydrodynamics, Magnetohydrodynamics, Peculiar A Stars, Solar Activity  
 13.04 Magnetic Lines  
 13.05 Magnetic Stars, *see* Neutron Stars, Peculiar A Stars  
 13.06 Magnetohydrodynamics, *see also* Hydrodynamics  
 13.07 Magnitudes, *see also* under the different Objects, especially Clusters, globular and open  
 13.08 Main-Sequence Stars  
 13.10 Manganese Stars, *see* Peculiar A Stars  
 13.11 Markarian Galaxies, *see also* Seyfert Galaxies  
 13.12 Mars, *see also* Planets  
 13.13 Maser, *see also* OH Sources  
 13.14 Mass Exchange, *see also* Close Binaries, Mass Loss  
 13.15 Massive Stars, *see also* Star Formation, Stellar-Evolution  
 13.16 Mass Loss, *see also* Close Binaries, Eclipsing Binaries, Mass Exchange, Stellar Wind  
 13.17 Mass Luminosity Relation, Mass Radius Relation  
 13.18 Mercury  
 13.19 Mass Function, *see also* Star Formation, Stellar Masses  
 13.20 Metal Abundance, Metallicity, *see also* Barium Stars  
 13.21 Metallic Line Stars  
 13.22 Meteors, Meteoroids, Meteorites, Meteor Streams  
 13.23 Millimetre Observations  
 13.24 Minor Planets, *see* Asteroids  
 13.25 Mira Stars  
 13.26 MK Classification, *see* Spectral Classification  
 13.27 mm Radiation, *see* Millimetre Observations  
 13.28 Modes, *see* Oscillations  
 13.29 Molecular Clouds, *see* Interstellar Clouds, Radio Frequency Lines: Molecular Lines  
 13.30 Molecules, *see also* Interstellar Clouds, OH Sources, Radio Frequency Lines: Molecular Lines  
 13.31 Moon  
 13.32 Moving Groups  
 13.33 M Stars  
 13.34 Multiple Stars  
 13.35 Monte Carlo Method
- 14.00 Narrow Band Photometry, *see* Clusters, open; Galaxies, optical Observations; Photometry
- 14.01 N-body Problems  
 14.02 Nearby Stars, *see* Solar Neighborhood  
 14.03 Nebulae, *see also* Crab Nebula, H II Regions, Interstellar Clouds, Orion Nebula, Reflection Nebulae, Supernovae and Supernova Remnants  
 14.04 Neptune  
 14.05 Neutrinos  
 14.06 Neutron Stars, *see also* Pulsars  
 14.07 Night Sky  
 14.08 Non-LTE  
 14.09 North Polar Spur, *see* Galactic Structure  
 14.10 Novae and Nova-like Variables, *see also* Dwarf Novae  
 14.11 Nuclear Reactions, ... Synthesis  
 14.12 Nutation  
 14.13 Network, *see* Solar Chromosphere  
 14.14 Nuclear Bulge, *see* galactic Nucleus, M 31  
 14.15 Nuclei of Galaxies, *see also* Active Galaxies, Galaxies
- 15.01 OB Associations, *see* Associations  
 15.02 Observational Methods, *see also* Data Analysis, Speckle Interferometry  
 15.03 Occultations  
 15.04 OH Sources, *see also* Maser, Radio Frequency Lines: Molecular Lines  
 15.05 Opacities  
 15.06 Open Clusters, *see* Clusters, open  
 15.07 Optical Identifications  
 15.08 Origin of Matter, *see* Nuclear Reactions,  
 15.09 Orbital Determination, *see* Celestial Mechanics  
 15.10 Orion Nebula  
 15.11 Oscillations, *see also* Pulsations  
 15.12 Oscillator Strength, *see* Transition Probabilities  
 15.13 O Stars, *see* Early Type Stars
- 16.01 Pairs of Galaxies, *see* Double Galaxies  
 16.02 Parallaxes, *see also* Trigonometric Parallaxes  
 16.03 Parametric Instabilities  
 16.04 P Cygni Stars, P Cygni Profiles  
 16.05 Peculiar A stars  
 16.06 Peculiar Galaxies  
 16.07 Peculiar Motion of the Sun, *see* Solar Motion  
 16.08 Photometry, *see also* under the different Objects, especially Clusters, UV Radiation  
 16.09 Penumbra, *see* Sunspots  
 16.10 Photosphere, *see* Solar Photosphere  
 16.11 Physical Processes, *see also* Dynamo Theory, Gas Dynamics, Hanle Effect, Hydrodynamics, Line Broadening, Magnetohydrodynamics, Nuclear Reactions, Plasma Physics, Radiative Transfer, Shock Waves  
 16.12 Planetary Atmosphere, *see* under the single Planets  
 16.13 Planetary Nebulae, *see also* Supernovae and Supernova Remnants  
 16.14 Planetary System, *see* Cosmogony  
 16.15 Planets, *see also* under the individual names of Planets  
 16.16 Plasma Physics, *see also* Alfvén Waves, Gas Dynamics, Hydrodynamics  
 16.17 Pluto  
 16.18 Polarization, *see also* Faraday Rotation and under the different Objects  
 16.20 Polytropes  
 16.21 Populations  
 16.22 Positions, *see* Astrometry  
 16.23 Precession  
 16.24 Pre-Main-Sequence-Stars, *see also* Herbig-Haro Objects, Protostars  
 16.25 Prominences, *see* Solar Prominences  
 16.26 Proper Motions  
 16.27 Protogalaxies  
 16.28 Protoplanetary Cloud, *see* Cosmogony  
 16.30 Protostars, *see also* Star Formation, YY Orions Stars  
 16.31 Pulsars, *see also* Crab Nebula, Neutron Stars

- 16.32 Pulsations, *see also Oscillations*
- 17.01 Quasi-stellar Objects
- 17.02 Quarks
- 17.03 Quasi-stellar Objects, individual
- 18.01 Radar Echoes
- 18.02 Radial Velocities, *see also Spectroscopic Binaries*
- 18.03 Radiation Pressure
- 18.04 Radiative Transfer, *see also Scattering*
- 18.05 Radio Frequency Lines, *see Radio Frequency Lines: Molecular Lines, ... Recombination Lines, ... 21 cm Line*
- 18.06 Radio Frequency Lines: Molecular Lines, *see also Maser, OH Sources*
- 18.07 Radio Frequency Lines: Recombination Lines
- 18.08 Radio Frequency Lines: 21 cm Line, *see also Galaxies: Radio Observations, Markarian Galaxies*
- 18.09 Radio Telescopes, *see also Instruments*
- 18.10 Radio Galaxies, *see also Galaxies*
- 18.11 Radio Radiation, ... Sources, *see under the different Objects, and Galaxies - Radio Observation, Maser, Radio Frequency Lines, Radio Stars*
- 18.12 Radio Radiation, Solar, *see Solar Radio Radiation*
- 18.13 Radio Stars
- 18.14 R Coronae Borealis Stars
- 18.15 Recombination Lines, *see Radio Frequency Lines: Recombination Lines*
- 18.16 Reddening, *see Interstellar Absorption and Extinction*
- 18.17 Redshift, *see also Hubble Constant*
- 18.18 Red Stars, *see also flare Stars*
- 18.20 Reflection Nebulae
- 18.21 Refraction
- 18.22 Relativistic Astrophysics, *see also Gravitation and under the different Objects*
- 18.23 Relativistic Particles
- 18.24 Relativity
- 18.25 Resonance Lines, *see also Polarization, Stellar Chromosphere*
- 18.26 Ring Galaxies
- 18.27 Rotation, *see also galactic Rotation, stellar Rotation*
- 18.28 RR Lyrae Stars
- 18.29 Roche Lobe, *see also X-ray Binaries*
- 18.30 RS Canum Venaticorum Binaries
- 18.31 Runaway Stars
- 18.32 RV Tauri Stars
- 18.33 RW Aurigae Stars
- 18.34 Rayleigh Scattering, *see Scattering*
- 18.35 R Canis Majoris Stars, *see Eclipsing Binaries*
- 19.01 Satellites of Planets
- 19.02 Saturn
- 19.03 Scattering
- 19.04 Scintillation
- 19.05 Seeing, *see also Earth Atmosphere*
- 19.06 Semidetached Systems, *see Close Binaries*
- 19.07 Semiregular Variables, *see Variables*
- 19.08 Seyfert Galaxies, *see also Markarian Galaxies*
- 19.09 Selected Areas
- 19.10 Shell Stars, *see also Be Stars, Circumstellar Matter*
- 19.11 Shock Waves
- 19.12 Silicon Stars, *see Peculiar A Stars*
- 19.13 Site Testing
- 19.14 Sky Background, *see Background Radiation, Earth Atmosphere*
- 19.15 Solar Activity, *see also Bursts, Filaments, Solar Flares, Solar Prominences*
- 19.16 Solar Atmosphere, *see also Oscillations, Pulsations, Solar Chromosphere, ... Corona, ... Granulation, ... Photosphere*
- 19.17 Solar Chromosphere, *see also Solar Atmosphere, Solar Flares, Transition Zone*
- 19.18 Solar Constant
- 19.19 Solar Evolution, *see Stellar Evolution, Sun*
- 19.20 Solar Corona, *see also Bursts, Solar Atmosphere, Solar Radio Radiation, Stellar Coronae, Transition Zone*
- 19.21 Solar Cosmic Rays
- 19.22 Solar Cycle, *see Solar Activity*
- 19.23 Solar Eclipses
- 19.24 Solar Flares
- 19.25 Solar Granulation
- 19.26 Solar Motion
- 19.27 Solar Neighborhood
- 19.28 Solar Photosphere, *see also Solar Atmosphere, Solar Granulation*
- 19.30 Solar Prominences, *see also Filaments*
- 19.31 Solar Radio Radiation, *see also Bursts*
- 19.32 Solar Rotation
- 19.33 Solar System, *see Cosmogony*
- 19.34 Solar-Terrestrial Relations
- 19.35 Solar Type Stars
- 19.36 Solar Wind
- 19.37 Space Motion
- 19.38 Space Probes
- 19.39 Spectral Lines, *see Equivalent Widths, Line ...*
- 19.40 Speckle Interferometry
- 19.41 Spectra, *see under the different Objects, and Line Identification, Spectral Classification, Spectroscopy*
- 19.42 Spectral Classification
- 19.43 Spectrophotometry
- 19.44 Spectroscopic Binaries, *see also Eclipsing Binaries*
- 19.45 Spectroscopy
- 19.46 Spectrum Variables, *see also Delta Scuti Stars and other Types of Variables*
- 19.47 Spicules, *see Solar Chromosphere*
- 19.48 Spiral Arms, *see also Density Waves, Galactic Structure, Galaxies, Spiral Galaxies, Stellar Dynamics and Kinematics*
- 19.50 Spiral Galaxies, *see also Barred Spiral Galaxies, Galaxies, M 31*
- 19.51 S Stars, *see also Late Type Stars*
- 19.52 Stability, *see also Instability, Pulsations*
- 19.53 Star Formation, *see also Stellar Evolution*
- 19.54 Star Identification
- 19.55 Stark Effect, *see Line Broadening*
- 19.56 Stars, *see stellar ...*
- 19.57 Stars, individual
- 19.58 Stellar Atmospheres, *see also under the different Types of Stars, and Abundances, stellar; Stellar Coronae, Stellar Chromospheres*
- 19.59 Stellar Coronae
- 19.60 Stellar Chromospheres
- 19.61 Stellar Content
- 19.62 Stellar Diameters, *see also Eclipsing Binaries, Peculiar A Stars*
- 19.63 Stellar Dynamics and Kinematics, *see also Gamma Ray Radiation*
- 19.64 Stellar Envelopes, *see Be Stars, Circumstellar Matter, Shell Stars*
- 19.65 Stellar Evolution, *see also Star Formation, Stellar Structure*
- 19.66 Stellar Flares, *see Flare Stars*
- 19.67 Stellar Interior, *see Stellar Structure*
- 19.68 Stellar Masses, *see also Binary Stars, Multiple Stars*
- 19.69 Stellar Radii, *see Stellar Diameters*
- 19.70 Stellar Occultations, *see Occultation*
- 19.71 Stellar Rotation
- 19.72 Stellar Statistics, *see also Stellar Dynamics and Kinematics*
- 19.73 Stellar Structure, *see also Stellar Evolution*
- 19.74 Stellar Systems, *see also Clusters, Galaxies*
- 19.75 Stellar Wind, *see also Close Binaries, Early Type Stars, Mass Loss, Solar Wind, X-ray Binaries*
- 19.76 Stokes Parameter, *see Magnetic Field*
- 19.77 Störmer Problem
- 19.78 Stroemgren Photometry
- 19.80 Subdwarfs
- 19.81 Submillimetre Radiation
- 19.82 Sun, *see also Abundance, solar; and solar ...*
- 19.83 Sunspots
- 19.84 Supergalaxies, *see Clusters of Galaxies*
- 19.85 Supergiants
- 19.86 Supermassive Stars

- 19.87 Supernovae and Supernova Remnants, *see also* Crab Nebula, Pulsars
- 19.88 Surveys
- 19.89 Supergranulation, *see* Solar Granulation
- 19.90 Symbiotic Stars, *see also* Binary Stars
- 19.91 Synchrotron Radiation, *see also* Magnetohydrodynamics
- 19.92 Solar Oscillations
- 
- 20.01 Telescopes, *see* Instruments, Radio Telescopes
- 20.02 Thomson Scattering, *see* Scattering
- 20.03 Three Body Problems, *see also* N-body Problems
- 20.04 Tides
- 20.05 Time Observations
- 20.06 Transit, Mercury
- 20.07 Transition Probabilities
- 20.08 Transition Zone, *see* Solar Corona, Stellar Occultations
- 20.10 Trigonometric Parallaxes
- 20.11 Triple Stars, *see* Multiple Stars
- 20.12 T Tauri Stars, *see also* Herbig-Haro Objects, Pre-Main-Sequence Stars, YY Orionis Stars
- 20.13 Turbulence, *see also* Convection
- 20.14 Twenty-one-cm Line, *see* Radio Frequency Lines: 21-cm Line
- 
- 21.01 UBV Photometry, *see* Clusters (globular and open), Magnitudes, Photometry
- 21.02 U Geminorum Stars
- 21.03 Universe, *see* Cosmology
- 21.04 Uranus
- 21.05 UV Radiation, *see also* under the different Objects
- 21.06 UV Ceti Stars, *see* Flare Stars
- 
- 22.01 Variable Stars, *see also* Beta Cephei Stars, Beta Canis Majoris Stars, Cataclysmic Variables, Cepheids, Delta Scuti Stars, Eclipsing Binaries, Flare Stars, Mira Stars, P Cygni Stars, R. Coronae Borealis Stars, RR Lyrae Stars, RV Tauri Stars, Spectrum Variables, Symbiotic Stars, T Tauri Stars, VV Cephei Stars, W Ursae Majoris Stars, YY Orionis Stars
- 22.02 Velocities, *see* Radial Velocities, Space Motion
- 22.03 Venus
- 22.04 Very Long Baseline Interferometry (VLBI)
- 22.05 Virial Theorem
- 22.06 Visual Binaries, *see* Double Stars, visual
- 22.07 VLBI, *see* Very Long Baseline Interferometry
- 22.08 VV Cephei Stars
- 22.09 Violet Shift, *see* Red Shift
- 23.01 Wave length
- 23.02 White Dwarfs
- 23.03 Wilson Bappu Effect
- 23.04 Wisps
- 23.05 Wolf-Rayet Stars, *see also* Close Binaries
- 23.06 W Ursae Majoris Stars, *see also* Eclipsing Binaries
- 23.07 W Virginis Stars, *see* Cepheids
- 24.01 X-ray Binaries, *see also* X-ray Radiation
- 24.02 X-ray Spectroscopy
- 24.03 X-ray Radiation and ... Sources, *see also* under the different Objects and Background Radiation, X-ray Binaries
- 24.04 X-ray Radiation, solar
- 25.01 YY Orionis Stars
- 26.01 Zeeman Effect, *see* Magnetic Field
- 26.02 Zodiacal Light, *see also* Interplanetary Matter
- 26.03 ZZ Ceti Stars





## Author Index

- Ade, P.A.R. 130  
 Arnaud, J. 248  
 Arnould, M. 183
- Barbon, R. 35, 43  
 Bath, G.T. 286  
 Bonnet-Bidaud, J.M. 232  
 Brown, T.M. 260
- Carsenty, U. 54  
 Carusi, A. 201  
 Chapront-Touze, M. 75  
 Ciatti, F. 35, 43  
 Courtès, G. 312  
 Cruvellier, P. 312  
 Cunningham, C.T. 130
- de Mottoni y Palacios, G. 323  
 Dollfus, A. 323  
 Doom, C. 303, 308  
 Dulk, G.A. 217  
 Durrant, C.J. 332
- Feitzinger, J.V. 117  
 Froeschlé, M. 89
- Gathier, R. L5  
 Gioia, I.M. 164  
 Godoli, G. 188  
 Granitzky, L.V. 312  
 Gregorini, L. 164
- Groote, D. 64  
 Guilloteau, S. 101
- Hamann, W.-R. 273  
 Hanisch, R.J. 137  
 Hearn, A.G. 296  
 Heber, U. 273  
 Heck, A. 80  
 Hofmann, R.G. 179  
 House, L.L. 217  
 Hua, C.T. 312  
 Huang, R.Q. 348  
 Hunger, K. 64  
 Hut, P. 351
- Iijima, T. 210  
 Illing, R. 217
- Kaisig, M. 332  
 Kepa, A. 158  
 Kindl, C. 265  
 Klein, U. 164, 175  
 Koester, D. 147, 341  
 Kovalevsky, J. 89  
 Kresáková, M. 201  
 Krumm, N. 237  
 Kusch, H.J. 255
- Larson, H.P. 179  
 Lerche, I. 10  
 Lestrade, J.F. 75
- Li, T.P. 95  
 Livio, M. 286
- Marxer, N. 265  
 Mazzucconi, F. 188  
 McKenzie, J.F. 191  
 Méndez, R.H. L5  
 Muxlow, T. 60
- Niemela, V.S. L5  
 Nowakowski, L. 158  
 Nussbaumer, H. 265
- Ortolani, S. 43
- Paulus, G. 183  
 Phillips, J.P. 130, 293
- Rafanelli, P. 43  
 Rayet, M. 183  
 Reimers, D. 341  
 Richardson, K.J. 130, 293  
 Robson, E.I. 130  
 Roland, J. 60  
 Rosino, L. 35, 43
- Saha, H.P. 224  
 Sawyer, C. 217  
 Schiffer, R. 1  
 Schlickeiser, R. 10  
 Schönberner, D. 273  
 Schröder, K. 255  
 Schwedtfeger, H. 117  
 Severny, A.B. 312
- Shane, W.W. 237  
 Sheridan, K.V. 217  
 Soffel, M.H. 111  
 Solf, J. 54  
 Stannard, D. 60  
 Stewart, R.T. 217  
 Surdej, J. 80
- Thielheim, K.O. 1  
 Tondeur, F. 183  
 Trefftz, E. 224
- Usowicz, J. 158
- Valsecchi, G.B. 201  
 van der Klis, M. 232  
 Van Hamme, W. 27  
 Véron, P. 60  
 Völk, H.J. 191
- Wagner, W.J. 217  
 Watt, G.D. 130, 293  
 Weidemann, V. 147  
 Weigert, A. 348  
 Wendker, H.J. L1  
 White, G.J. 130, 293  
 Williams, P.M. 293  
 Wolfendale, A.W. 95  
 Wolszczan, A. 158
- Zeidler-K.T., E.-M. 147  
 Zvereva, A.M. 312



